

OUTPUT

COLUMBIA ENGINEERING
The Fu Foundation School of Engineering and Applied Science

CONS 4995 ML Applications in Finance
[Final Project]

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2012/08/01 ~ 2020/07/30

Train Model

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☒ Main
☐ Feature Importance
☐ Model Performance

Decision Support System for CDX Trading

CDX Historical Data:

☐ Display Historical Data Table?[View Historical Indices](#)

COX_HY X COX_IG X




Predictions and Forecasts

Model recommends taking **SHORT** position on CDX HY, based on our predicted price **DECREASE** in longer term

Model recommends taking **SHORT** position on CDX IG, based on our predicted price DECREASE in longer term

	CDX_HY	CDX_IB	CDX_HY_Pread_10	CDX_IB_Pread_10	CDX_HY_Pread_70	CDX_IB_Pread_70	CDX_HY_Pread_300
2020-07-30	102.847000	69.840000					
2020-07-29	102.720000	69.640000					
2020-07-28	101.920000	71.763000					
2020-07-27	102.096000	70.286000					
2020-07-24	101.625000	70.400000					
2020-07-23	101.663000	69.485000					
2020-07-22	101.974000	69.159000					
2020-07-21	101.709000	70.126000					
2020-07-20	101.568000	70.063000					
2020-07-17	101.191000	71.459000					



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 Feature Importance

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Decision Support System for CDX Trading

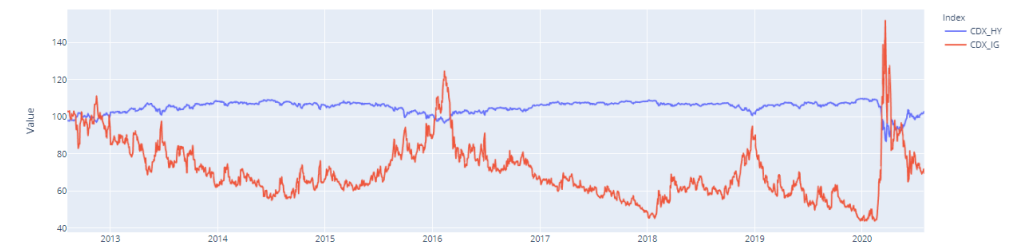
CDX Historical Data:

☒ Display Historical Data Table?

	10R_UST	10_2_Curve	10_30_Curve	10_5_Curve	1YR_SNAP	2YR_UST	30R_UST	5YR_UST	CDS_HY	CDS_HY_180_AVG	CDS_HY_360_AVG	CDS_HY_5D_AVG	CDS_HY_5D_AVG
2020-07-30	0.5460	0.4290	0.6610	0.3160	0.0340	0.1170	1.2070	0.2310	102.8470	101.9300	100.5900	102.2410	102.2410
2020-07-29	0.5740	0.4430	0.6620	0.3220	0.0390	0.1310	1.2860	0.2520	102.7200	101.7260	100.5300	102.0640	102.0640
2020-07-28	0.5790	0.4400	0.6300	0.3160	0.0360	0.1390	1.2170	0.2440	101.9200	101.5520	100.5010	101.8550	101.8550
2020-07-27	0.6150	0.4640	0.6450	0.3300	0.0370	0.1510	1.2600	0.2050	102.0960	101.3390	100.4900	101.8270	101.8270
2020-07-24	0.5090	0.4420	0.6400	0.3130	0.0350	0.1470	1.2290	0.2760	101.6250	101.1010	100.4450	101.7220	101.7220
2020-07-23	0.5770	0.4260	0.6540	0.3060	0.0350	0.1510	1.2310	0.2710	102.6630	100.9400	100.3840	101.6350	101.6350
2020-07-22	0.5970	0.4480	0.6960	0.3230	0.0360	0.1490	1.2930	0.2740	101.9740	100.7540	100.3990	101.4480	101.4480
2020-07-21	0.6000	0.4590	0.7090	0.3360	0.0360	0.1410	1.3090	0.2640	101.7000	100.6350	100.3870	101.2500	101.2500
2020-07-20	0.6100	0.4630	0.7020	0.3310	0.0360	0.1470	1.3120	0.2790	101.5680	100.4140	100.4300	100.8520	100.8520
2020-07-17	0.6270	0.4820	0.7020	0.3440	0.0330	0.1450	1.3290	0.2030	101.1910	100.3110	100.5110	100.4810	100.4810
2020-07-16	0.6170	0.4720	0.6910	0.3420	0.0320	0.1450	1.3000	0.2750	100.7310	100.1720	100.5250	100.2450	100.2450

[View Historical Indices](#)

CDX_HY X CDX_IG X





1 Day Forecast:

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Decision Support System for CDX Trading

	Feature	Description
0	10_2_Curve	10/2 Curve
1	10_5_Curve	10/5 Curve
2	10_30_Curve	10/30 Curve
3	1YR_swap	Overnight Indexed Swap (OIS) is a fixed/floating interest rate swap
4	2YR_UST	2-Year Treasury Rate
5	5YR_UST	5-Year Treasury Rate
6	10YR_UST	10-Year Treasury Rate
7	30YR_UST	30-Year Treasury Rate
8	CDX_HY	Markit CDX North America High Yield Index is composed of 100 non-investment grade entities TARGET
9	CDX_HY_momentum	Price momentum of CDX_HY
10	CDX_HY_100_AVG	100_AVG

Which Model?

1

Feature Importance HY

CDX_HY

CDX_HY_SPREAD

CDX_HY_momentum

CDX_IG_momentum

10_5_Curve

2YR_UST

OIL

30YR_UST

LIUACTRUU_Index_SPREAD_DURATION_RATIO

CITI_SURPRISE

GOLD_momentum

CDX_HY_30D_AVG

CDX_HY_10D_AVG

LF98TRUU_Index_DURATION

10_2_Curve

LF98TRUU_Index_SPREAD_RATE_RATIO

10YR_UST

VIX_INDEX

LIUACTRUU_Index_SPREAD_RATE_RATIO

LF98TRUU_Index_DURATION

LIUACTRUU_Index_RATE_COMP

Feature Importance IG

30YR_UST

LIUACTRUU_Index_SPREAD_DURATION_RATIO

CDX_HY_30D_AVG

CDX_IG_momentum

GOLD_momentum

CDX_HY_10D_AVG

OIL

CDX_IG_30D_AVG

CDX_IG_5D_AVG

CITI_SURPRISE

CDX_HY_momentum

VIX_INDEX

LF98TRUU_Index_SPREAD_RATE_RATIO

LF98TRUU_Index_DURATION

CDX_HY_SPREAD

CDX_HY

5YR_UST

CDX_IG

2YR_UST

LIUACTRUU_Index_DURATION

10_2_Curve

LIUACTRUU_RATE_COMP

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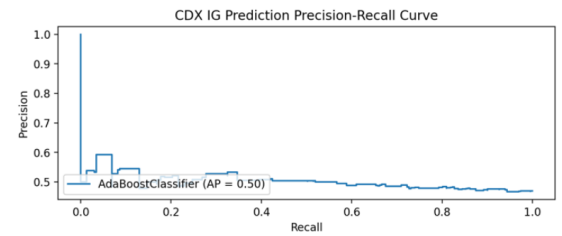
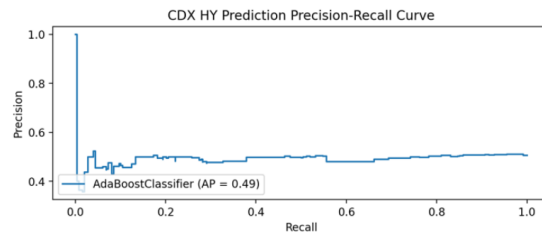
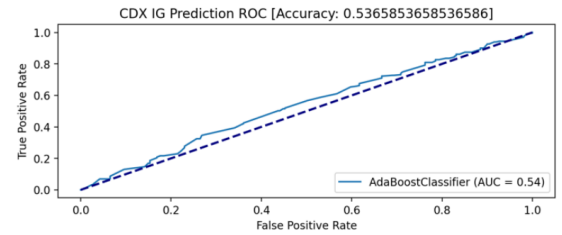
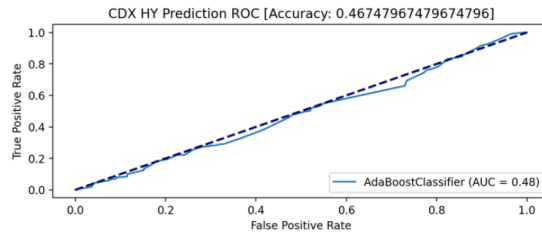
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Decision Support System for CDX Trading

Which Model?

1



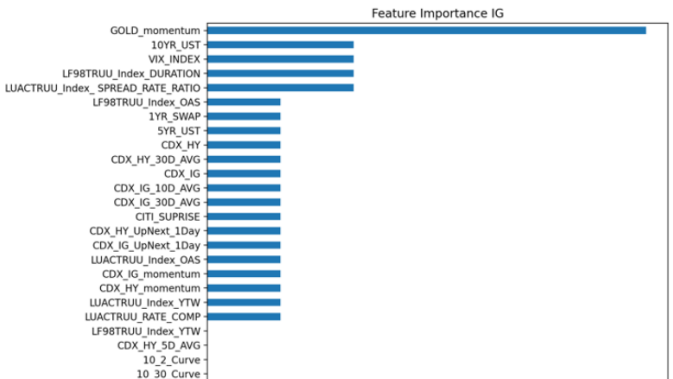
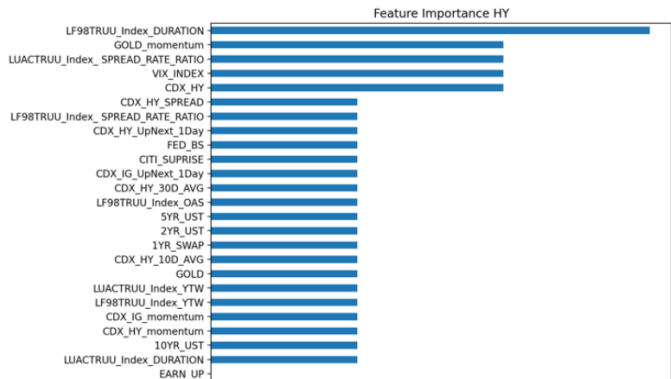
7 Day Forecast:

Decision Support System for CDX Trading

	Feature	Description
0	10_2_Curve	10/2 Curve
1	10_5_Curve	10/5 Curve
2	10_30_Curve	10/30 Curve
3	1YR_SWAP	Overnight Indexed Swap (OIS) is a fixed/float interest rate swap
4	2YR_UST	2-Year Treasury Rate
5	5YR_UST	5-Year Treasury Rate
6	10YR_UST	10-Year Treasury Rate
7	30YR_UST	30-Year Treasury Rate
8	CDX_HY	Markit CDX North America High Yield Index is composed of 100 non-Investment grade entities TARGET
9	CDX_HY_momentum	Price momentum of CDX_HY
10	CDX_HY_10D_AVG	10D_AVG

Which Model?

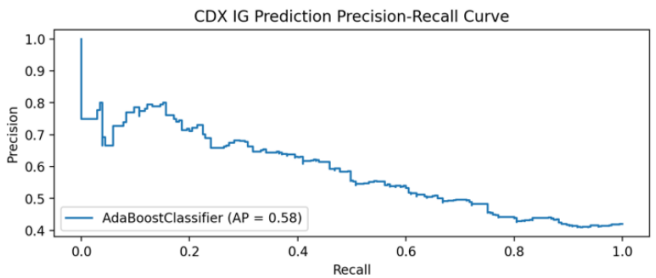
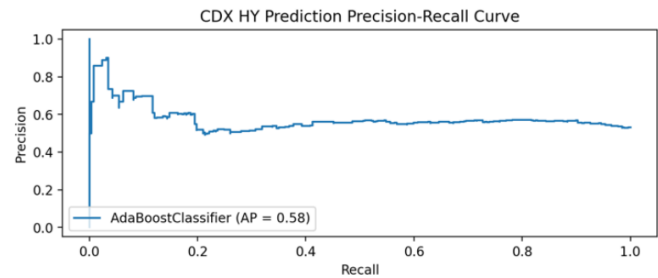
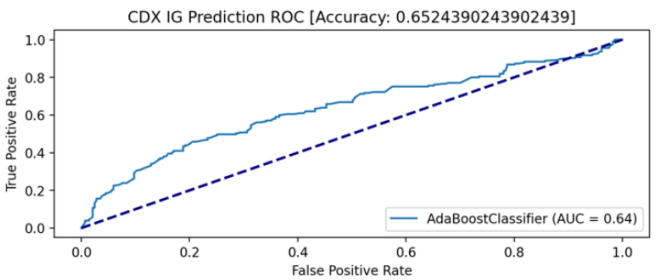
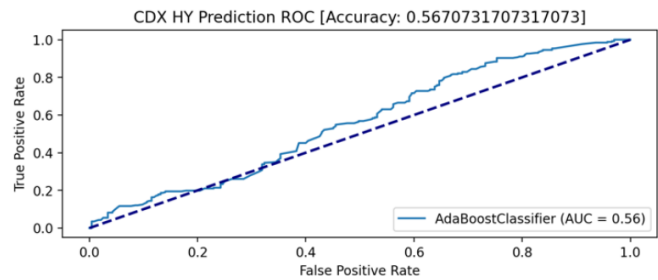
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Decision Support System for CDX Trading

Which Model?

7



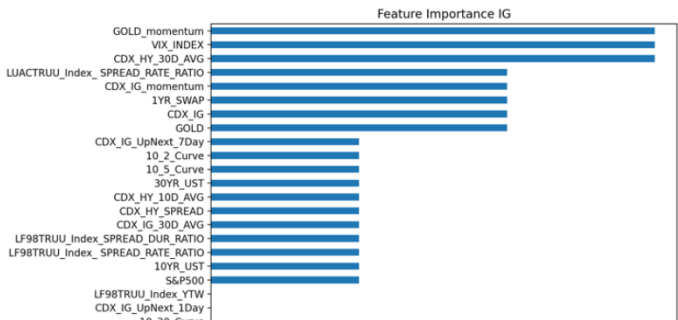
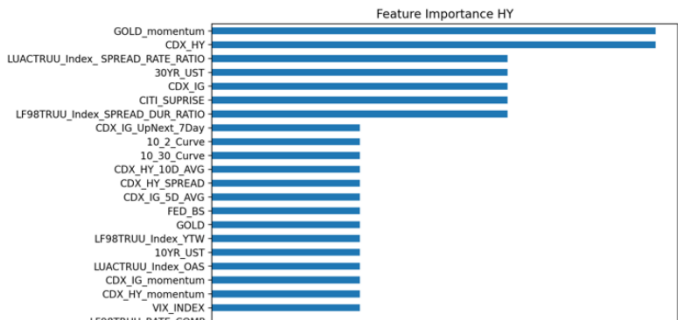
30 Day Forecast:

Decision Support System for CDX Trading

	Feature	Description
0	10_2_Curve	10/2 Curve
1	10_5_Curve	10/5 Curve
2	10_30_Curve	10/30 Curve
3	1YR_SWAP	Overnight Indexed Swap (OIS) is a fixed/float interest rate swap
4	2YR_UST	2-Year Treasury Rate
5	5YR_UST	5-Year Treasury Rate
6	10YR_UST	10-Year Treasury Rate
7	30YR_UST	30-Year Treasury Rate
8	CDX_HY	Markit CDX North America High Yield Index is composed of 100 non-investment grade entities TARGET
9	CDX_HY_momentum	Price momentum of CDX_HY
10	CDX_HY_180_AVG	180 AVG

Which Model?

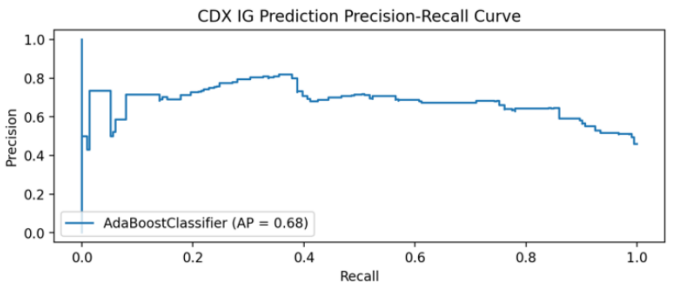
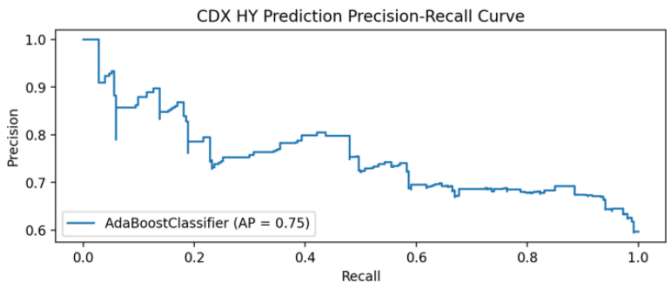
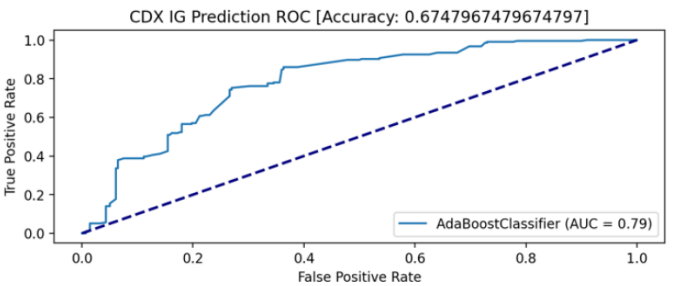
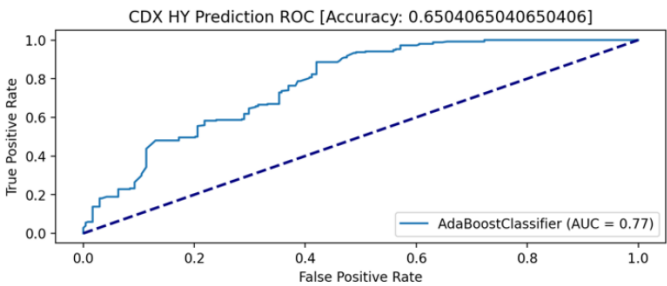
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Decision Support System for CDX Trading

Which Model?

30



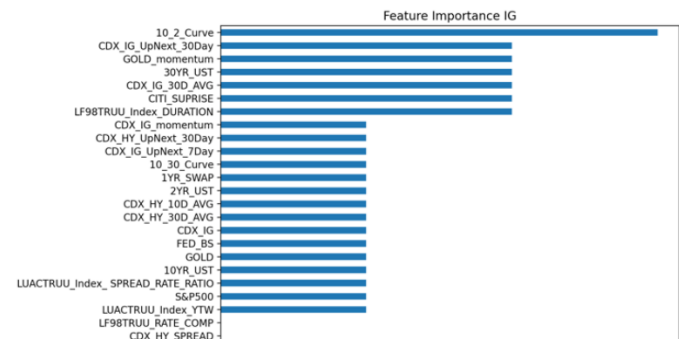
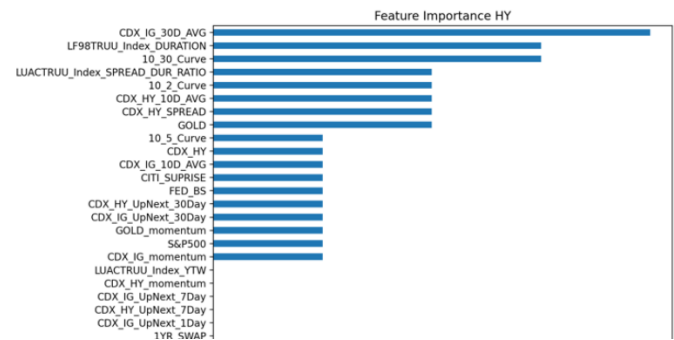
60 Day Forecast:

Decision Support System for CDX Trading

	Feature	Description
0	10_2_Curve	10/2 Curve
1	10_5_Curve	10/5 Curve
2	10_30_Curve	10/30 Curve
3	1YR_SWAP	Overnight Indexed Swap (OIS) is a fixed/float interest rate swap
4	2YR_UST	2-Year Treasury Rate
5	5YR_UST	5-Year Treasury Rate
6	10YR_UST	10-Year Treasury Rate
7	30YR_UST	30-Year Treasury Rate
8	CDX_HY	Markit CDX North America High Yield Index is composed of 100 non-investment grade entities TARGET
9	CDX_HY_momentum	Price momentum of CDX_HY
10	CDX_HY_180_AVG	180_AVG

Which Model?

60



Decision Support System for CDX Trading

Which Model?

60

