

# HedgAI Signals - 12/21/2023

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- Buys Added: Euro To US Dollar Cross, UST 30yr Yield

- Sells Added: Lithium \$LIT, US Dollar

- Buys Closed: Platinum, Silver

- Sells Closed:

## HedgAI Signals - Current Signals (Displaying Prediction Z Scores)

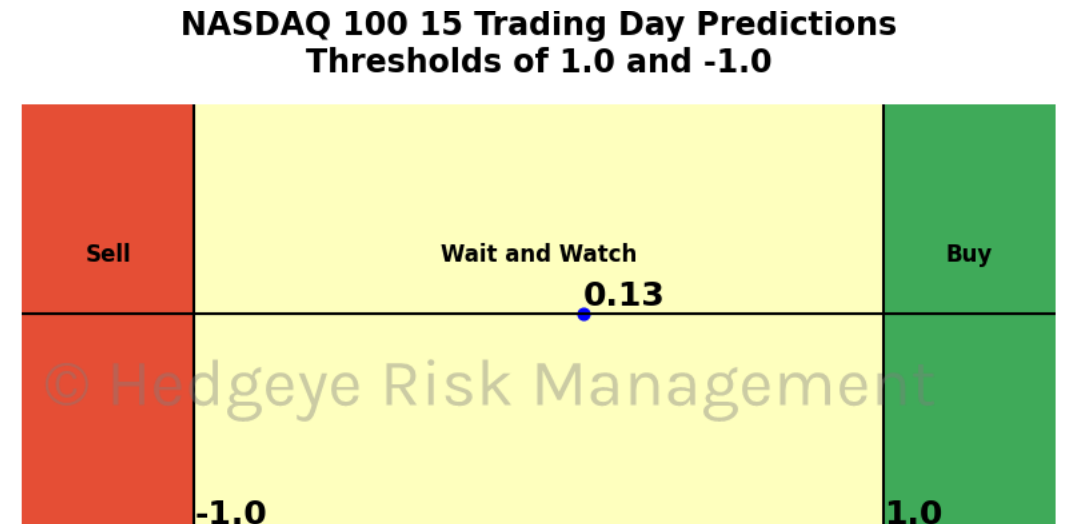
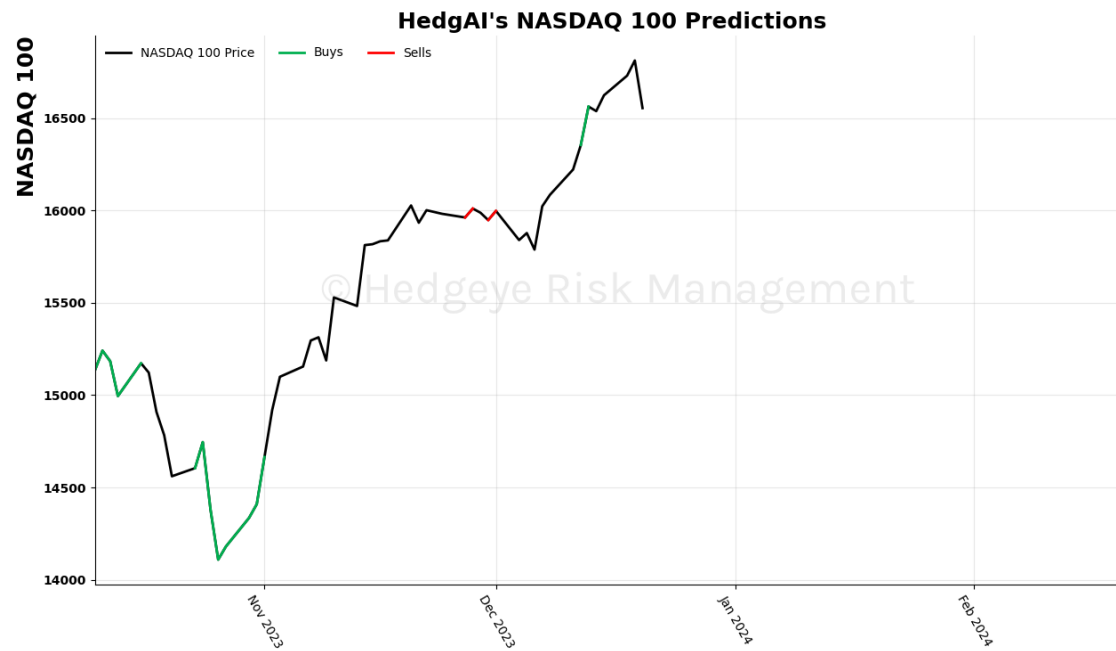
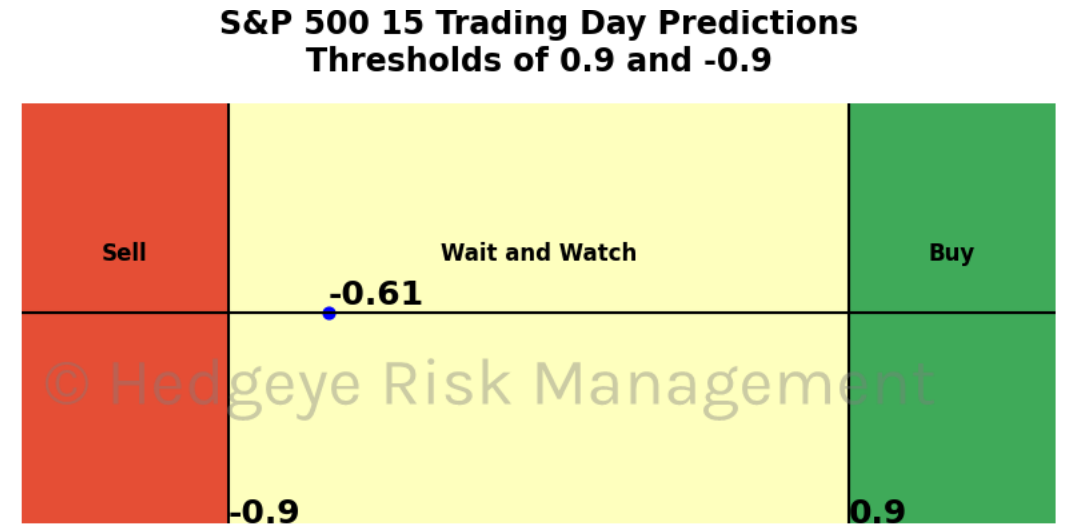
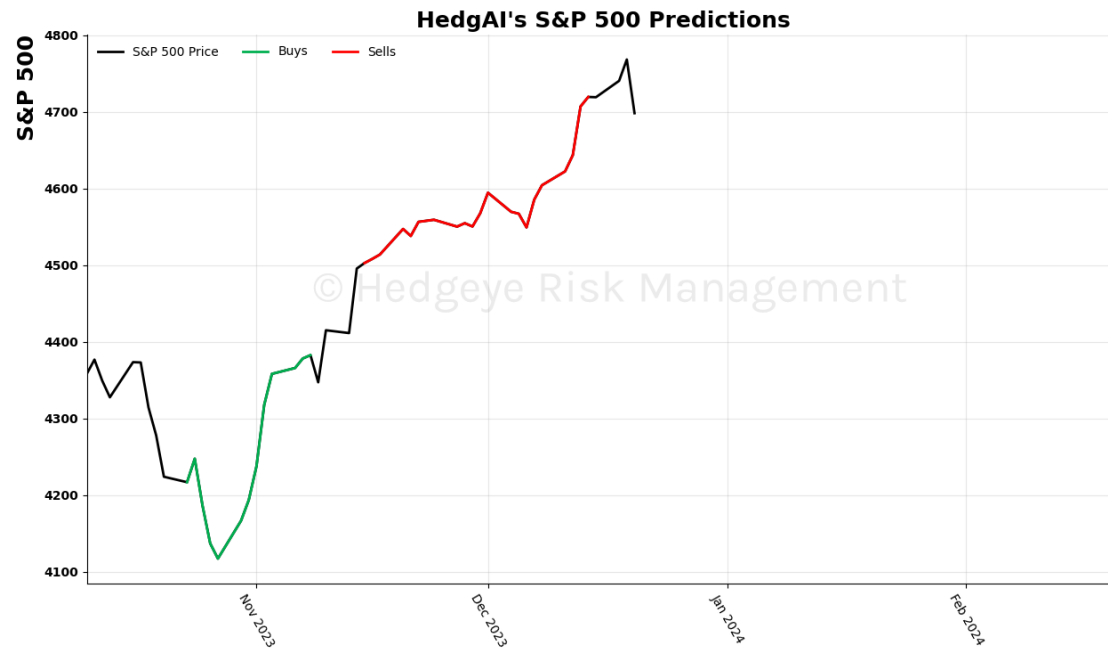
Asset	Current Position	Threshold	Today	1 Day Ago	2 Days Ago	3 Days Ago
Steel	Long	1.0	2.28	2.41	1.78	1.96
Platinum	Long	1.0	1.05	1.3	1.45	1.68
Silver	Long	1.0	1.07	0.99	0.87	0.58
Corn Futures	Long	0.5	6.64	4.88	3.33	2.32

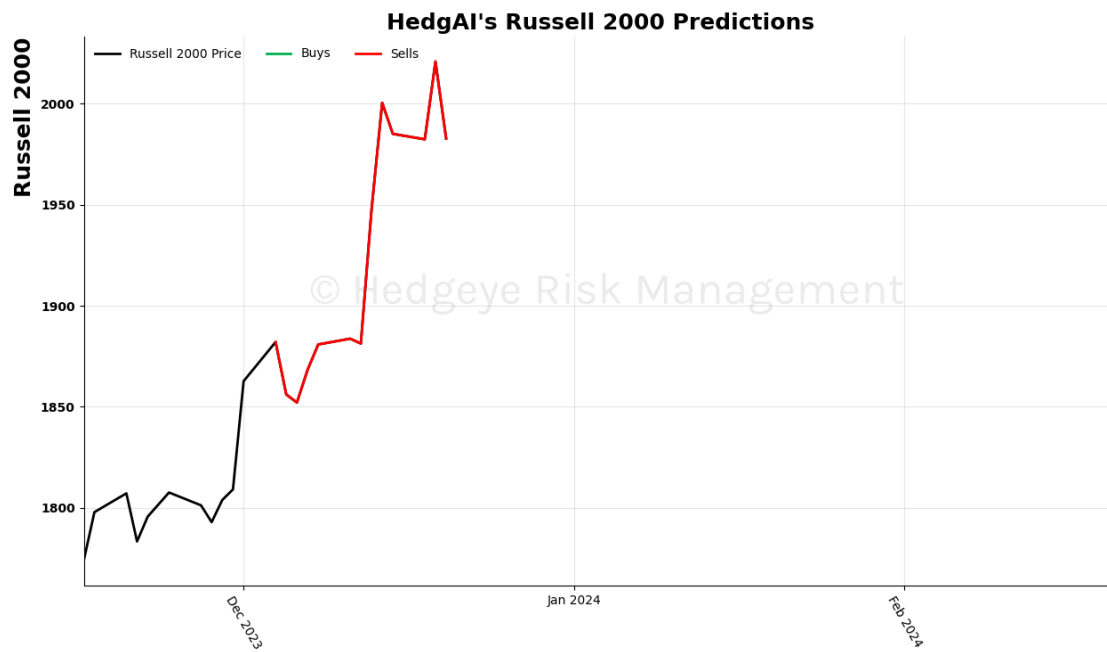
Asset	Current Position	Threshold	Today	1 Day Ago	2 Days Ago	3 Days Ago
Russell 2000	Short	0.9	-1.23	-1.25	-1.29	-1.31
Apple	Short	0.8	-2.22	-1.93	-1.69	-1.37
Google	Short	1.0	-1.46	-1.67	-1.9	-1.82
Meta Platforms	Short	0.8	-1.79	-1.18	-0.66	-0.38
Industrials \$XLI	Short	0.8	-1.39	-0.64	0.3	1.04
Health Care \$XLV	Short	0.9	-1.97	-1.39	-1.38	-0.3
Japan (Nikkei)	Short	0.5	-1.09	-1.55	-1.47	2.61
Copper Futures	Short	0.7	-1.88	-2.09	-2.03	-1.72
Wheat	Short	0.7	-1.1	-1.23	-1.02	-0.94
Sugar	Short	0.9	-1.0	-0.95	-0.86	-0.83
Canadian Dollar To US Dollar Cross	Short	0.6	-0.64	-0.17	0.82	0.89
High Yield Corp Bond \$HYG	Short	1.0	-1.51	-1.55	-1.43	-1.09

# HedgAI Signals - Summary Signals

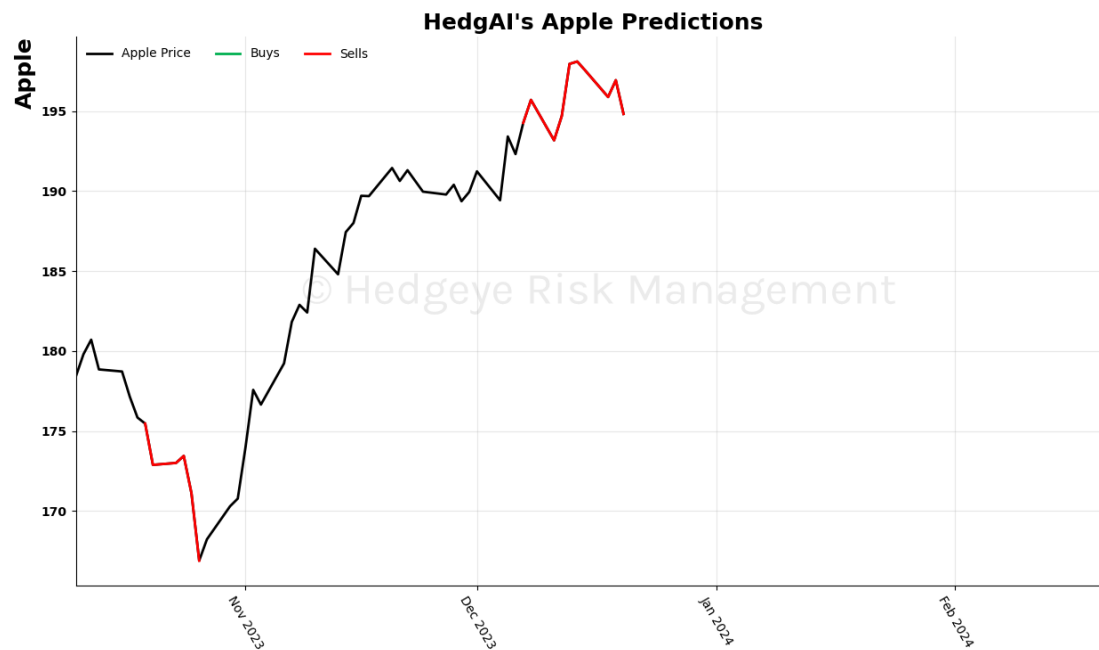
Asset	Current Position	Threshold	Today	1 Day Ago	2 Days Ago	3 Days Ago
S&P 500	Wait and Watch	0.9	-0.61	-0.51	-0.54	-0.63
NASDAQ 100	Wait and Watch	1.0	0.13	-0.07	-0.07	0.36
Russell 2000	Sell	0.9	-1.23	-1.23	-1.25	-1.29
Apple	Sell	0.8	-1.42	-2.22	-1.93	-1.69
Microsoft	Wait and Watch	0.8	-0.37	-0.26	-0.07	-0.06
Google	Sell	1.0	-1.26	-1.46	-1.67	-1.9
Amazon	Wait and Watch	1.0	0.33	0.4	0.6	0.78
NVIDIA	Wait and Watch	0.7	0.35	-0.16	-0.26	-0.32
Tesla	Wait and Watch	0.8	-0.74	-0.67	-0.83	-0.8
Meta Platforms	Sell	0.8	-2.06	-1.79	-1.18	-0.66
Netflix	Wait and Watch	1.0	-0.45	-0.03	0.24	0.36
Materials \$XLB	Wait and Watch	1.0	0.61	0.37	0.15	-0.07
Energy \$XLE	Wait and Watch	0.9	-0.35	0.07	0.46	0.71
Financials \$XLF	Wait and Watch	0.7	-0.63	-0.63	-0.64	-0.62
Industrials \$XLI	Sell	0.8	-1.73	-1.39	-0.64	0.3
Technology \$XLK	Wait and Watch	1.0	-0.13	-0.33	-0.38	-0.49
Consumer Staples \$XLP	Wait and Watch	1.0	0.22	0.16	0.04	-0.13
Utilities \$XLU	Wait and Watch	0.9	0.89	0.52	0.05	-0.26
Health Care \$XLV	Sell	0.9	-2.06	-1.97	-1.39	-1.38
Consumer Discretionary \$XLY	Wait and Watch	0.5	-0.04	-0.17	-0.4	-0.25
Retail \$XRT	Wait and Watch	0.9	-0.63	-0.41	-0.16	0.04
Germany (Dax)	Wait and Watch	0.5	0.25	0.26	0.26	0.26
China (Shanghai Composite)	Wait and Watch	1.0	0.92	0.95	0.93	0.91
Japan (Nikkei)	Sell	0.5	-2.55	-1.09	-1.55	-1.47
Bitcoin	Wait and Watch	0.8	-0.28	-0.06	-0.06	-0.08
WTI Crude Oil	Wait and Watch	1.0	0.98	0.42	-0.13	-0.33
Brent Crude Oil	Wait and Watch	1.0	0.06	0.19	0.33	0.34
Natural Gas Futures	Wait and Watch	1.0	-0.93	-0.78	-0.64	-0.4
Copper Futures	Sell	0.7	-1.78	-1.88	-2.09	-2.03
Steel	Buy	1.0	2.84	2.28	2.41	1.78
Lithium \$LIT	Sell	1.0	-1.52	-0.96	-1.55	-1.43
Palladium	Wait and Watch	0.8	0.21	0.35	0.52	0.56
Platinum	Wait and Watch	1.0	0.78	1.05	1.3	1.45
Silver	Wait and Watch	1.0	0.68	1.07	0.99	0.87
Gold	Wait and Watch	1.0	0.99	0.7	0.59	0.57
Uranium \$URA	Wait and Watch	0.6	-0.53	-0.5	-0.42	-0.3
Corn Futures	Buy	0.5	5.51	6.64	4.88	3.33
Soybean Futures	Wait and Watch	1.0	0.09	0.21	0.21	0.21
Wheat	Sell	0.7	-0.88	-1.1	-1.23	-1.02
Sugar	Sell	0.9	-1.06	-1.0	-0.95	-0.86
US Dollar	Sell	1.0	-1.4	-0.35	0.1	0.07
Euro To US Dollar Cross	Buy	1.0	1.0	0.62	0.31	0.1
British Pound To US Dollar Cross	Wait and Watch	0.8	-0.06	-0.22	-0.3	-0.39
US Dollar To Yen Cross	Wait and Watch	1.0	-0.52	-0.99	-1.39	-1.14
Canadian Dollar To US Dollar Cross	Sell	0.6	-0.81	-0.64	-0.17	0.82
UST 2yr Yield	Wait and Watch	1.0	-0.41	-0.38	-0.37	-0.33
UST 10yr Yield	Wait and Watch	1.0	-0.08	-0.16	-0.3	-0.36
UST 30yr Yield	Buy	1.0	1.06	0.65	0.23	-0.25
High Yield Corp Bond \$HYG	Sell	1.0	-1.51	-1.51	-1.55	-1.43

# HedgAI Signals - Asset Charts

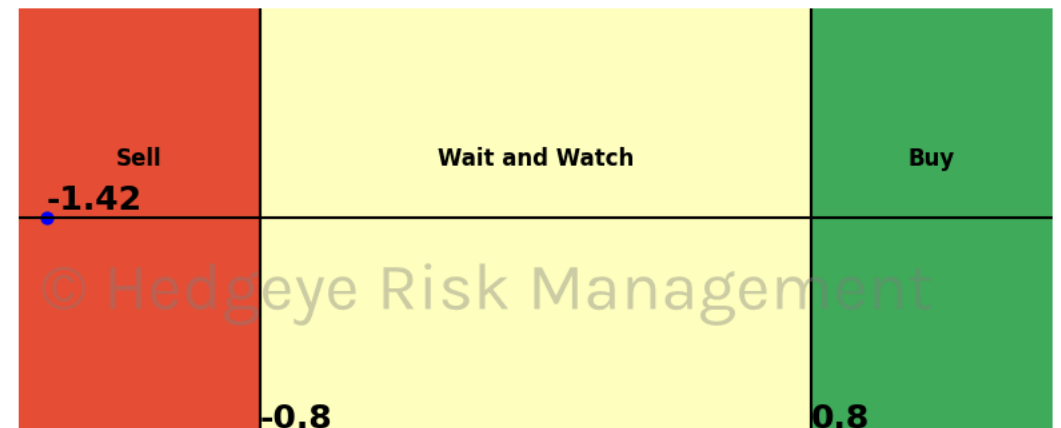


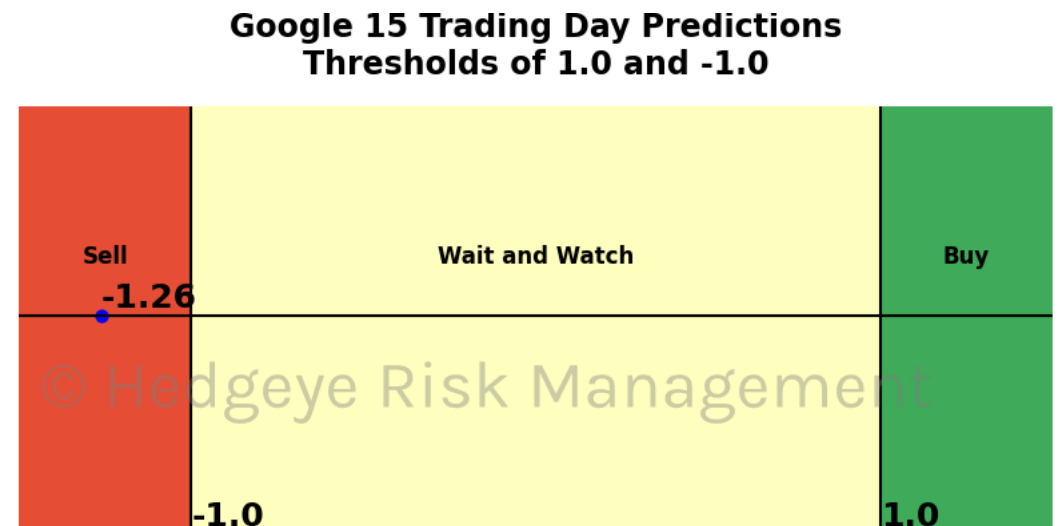
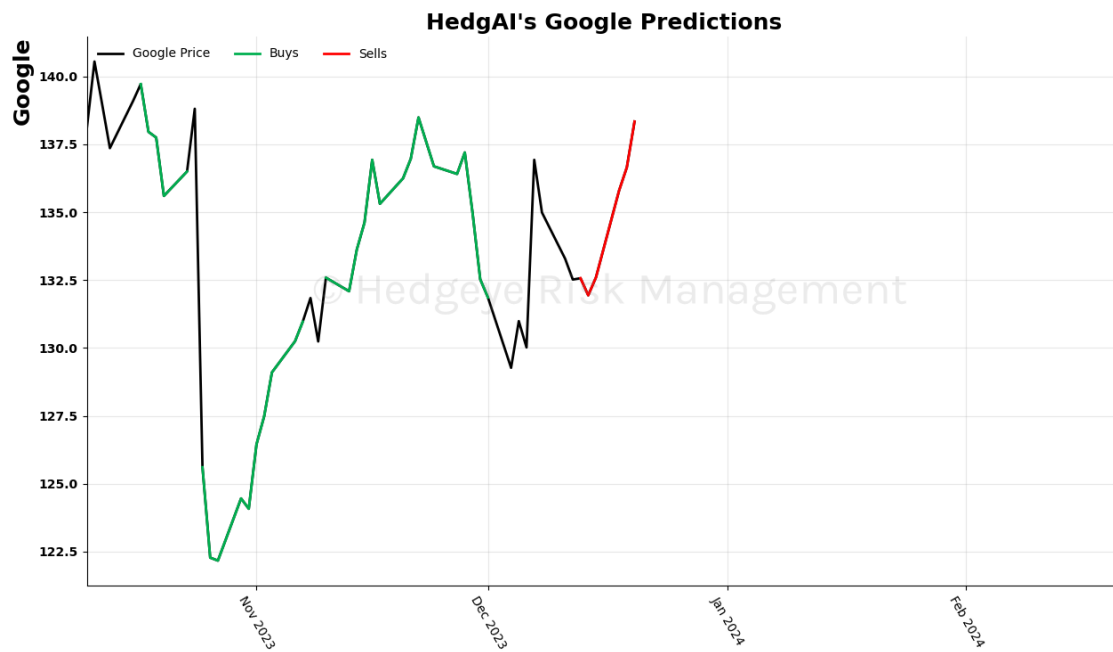
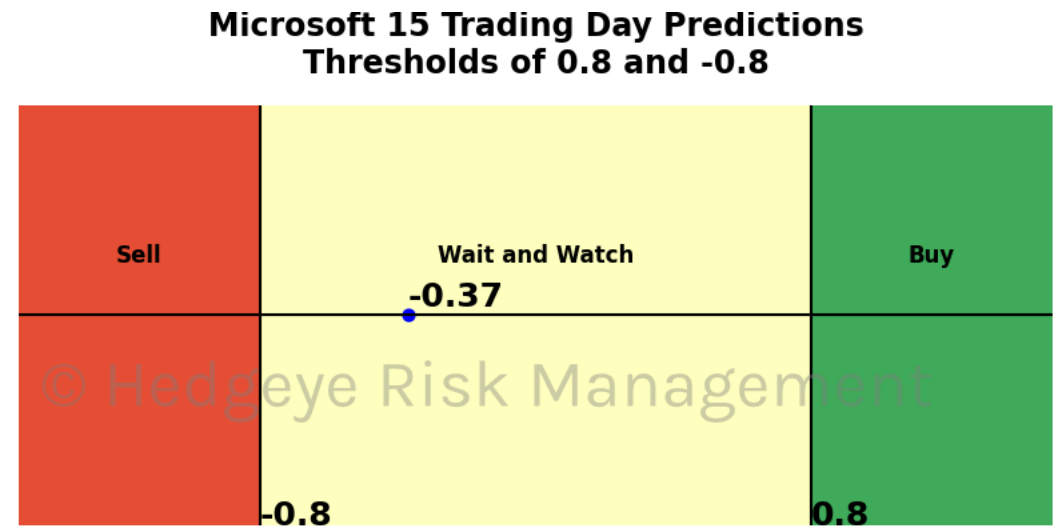
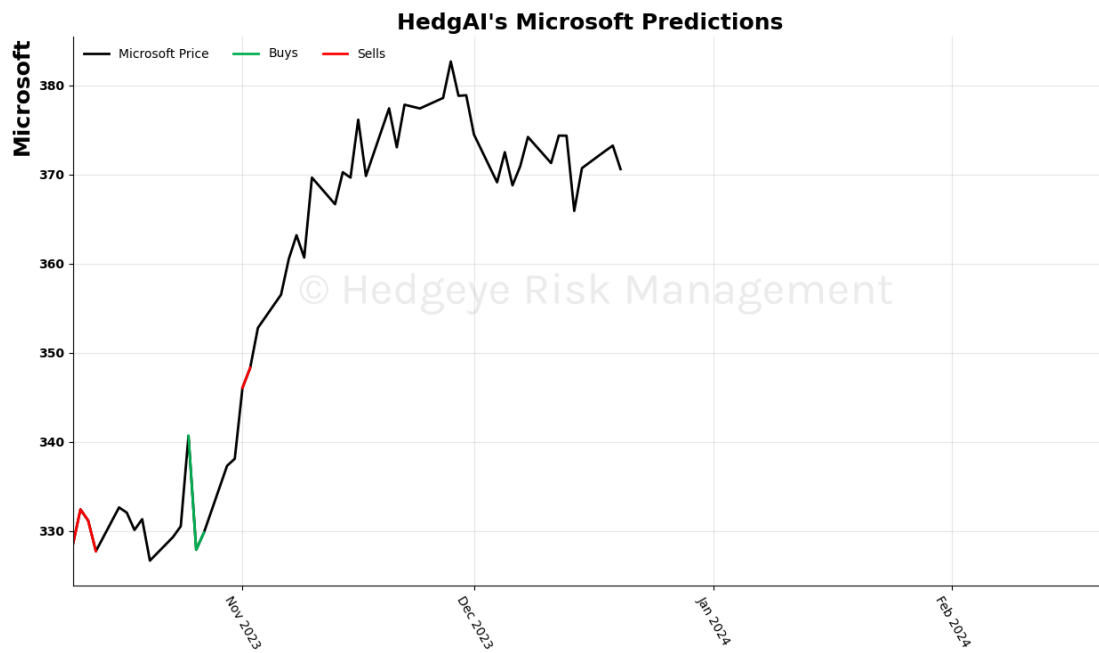


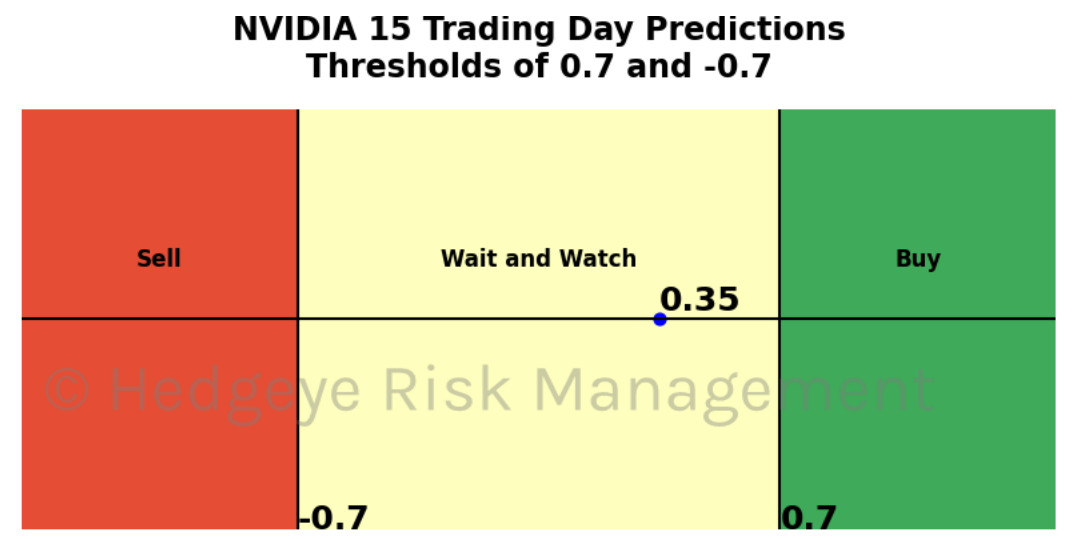
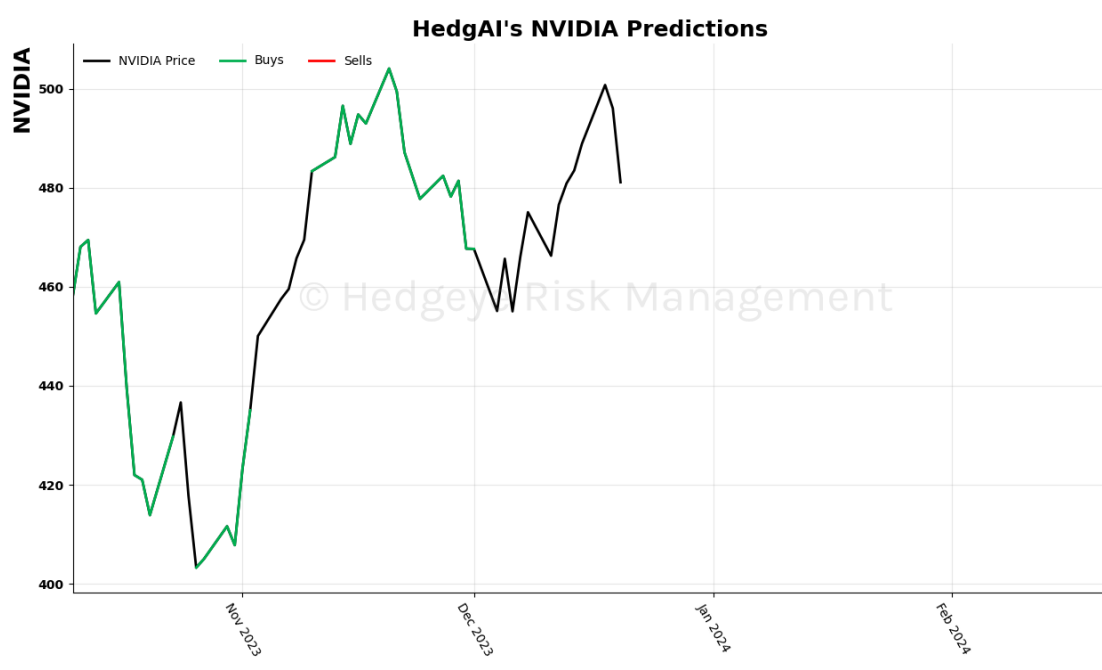
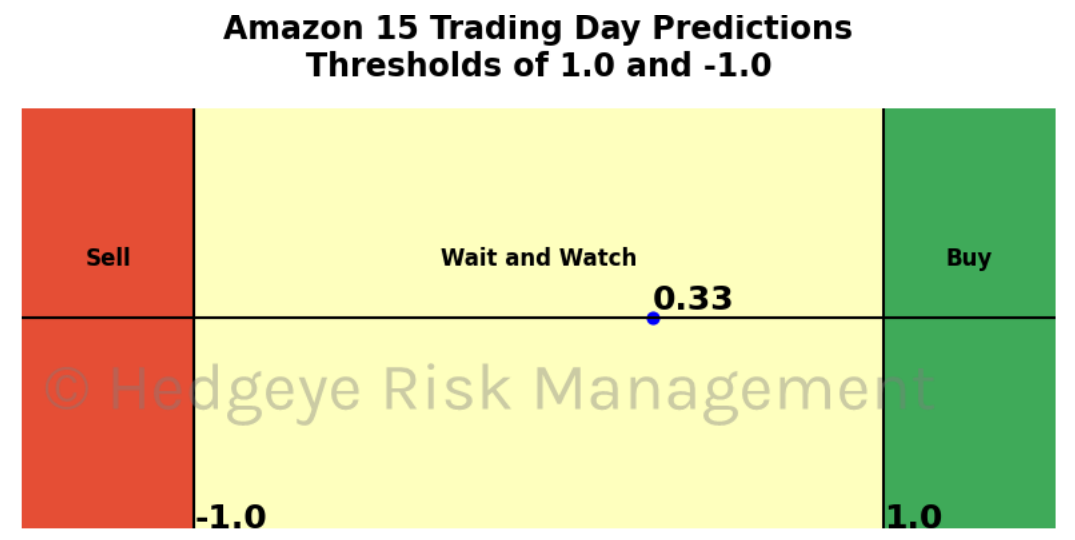
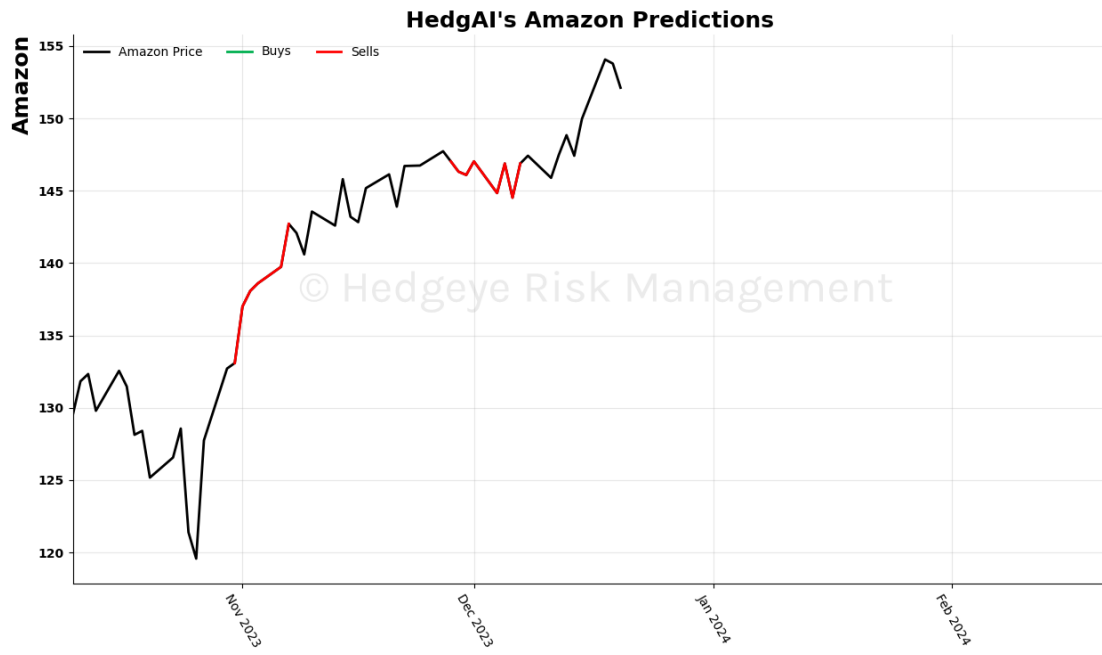
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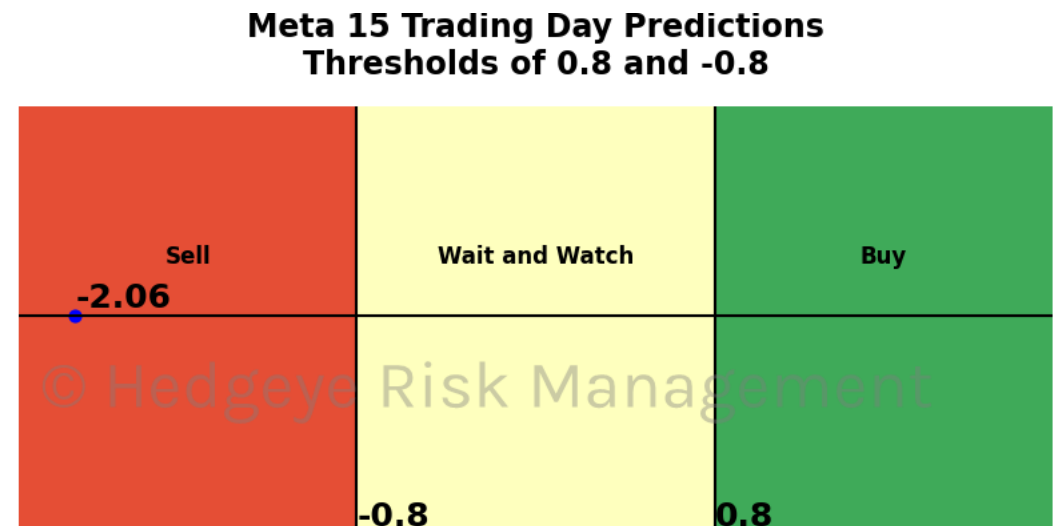
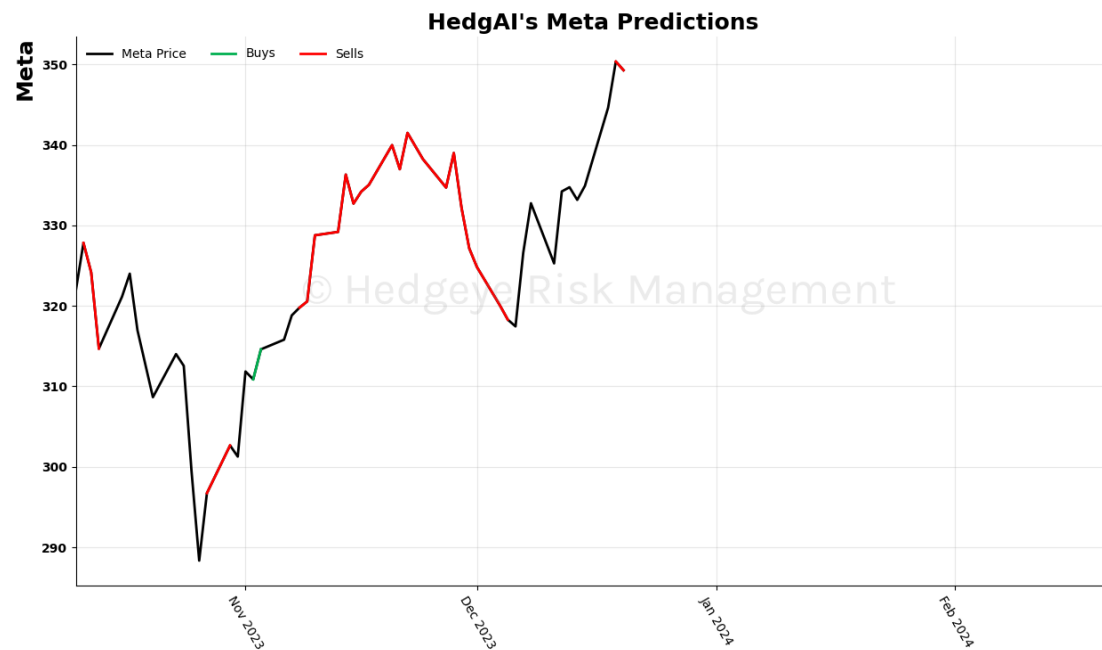
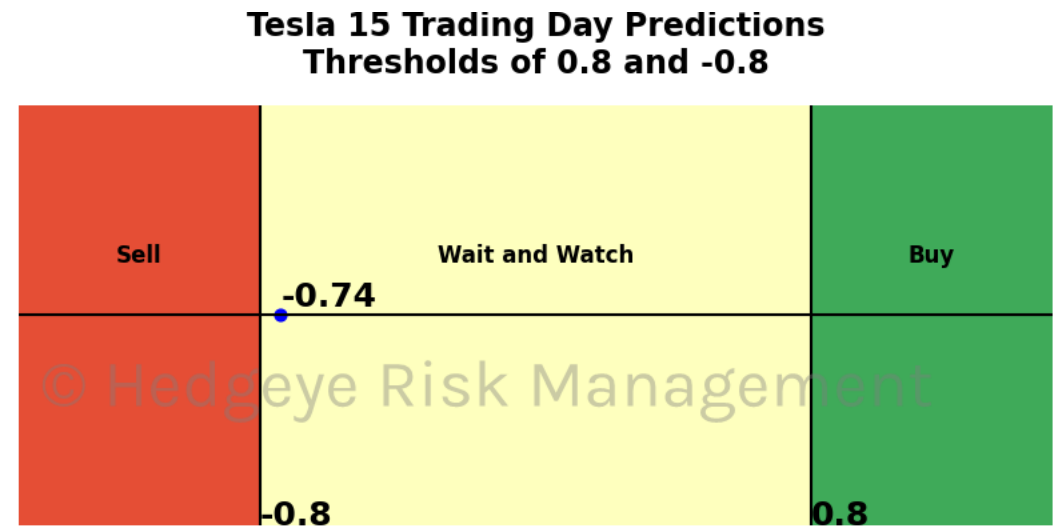
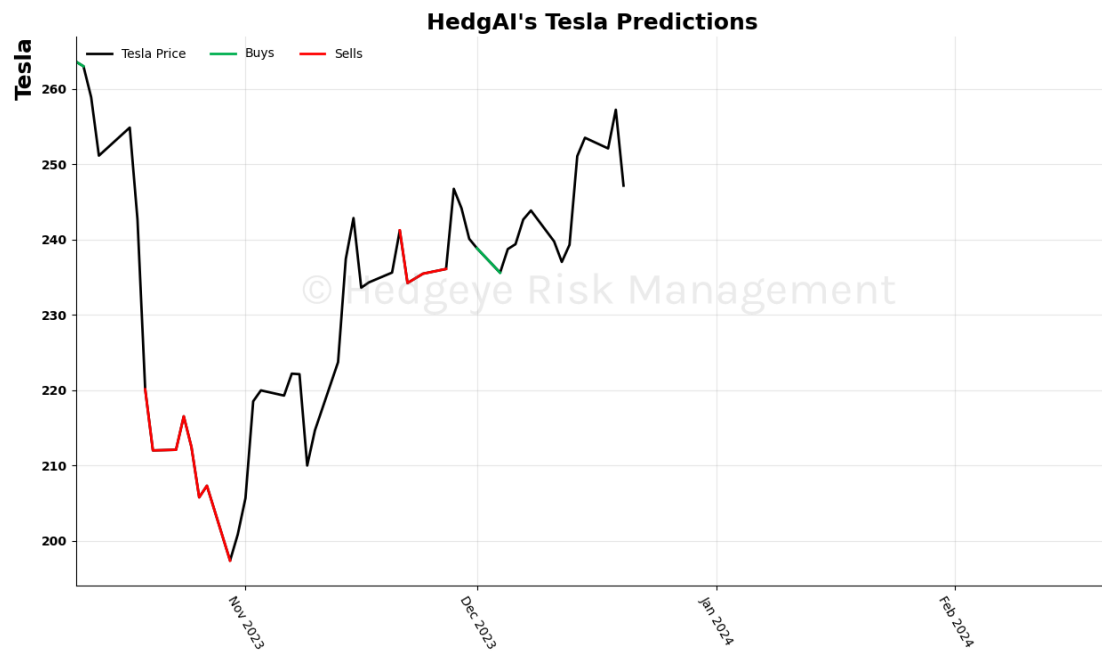


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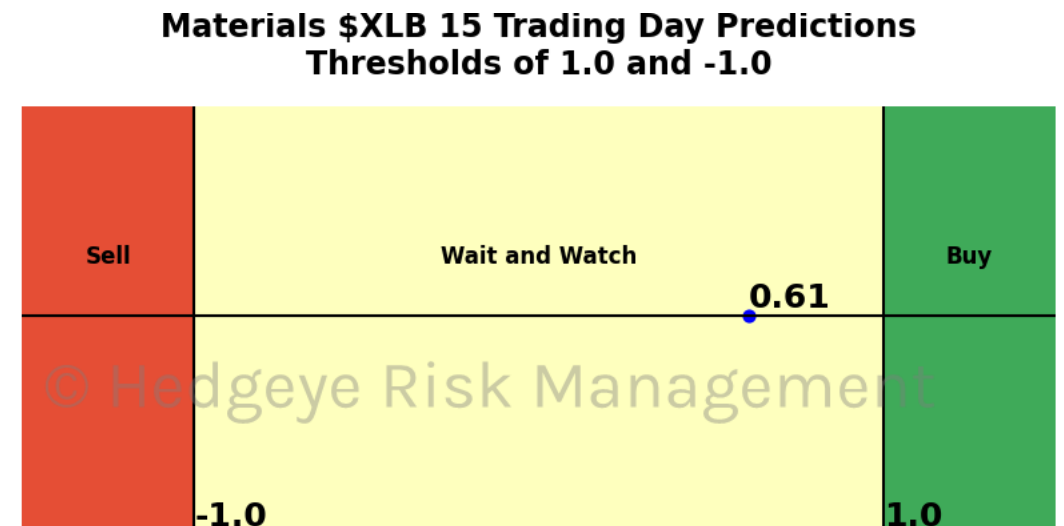
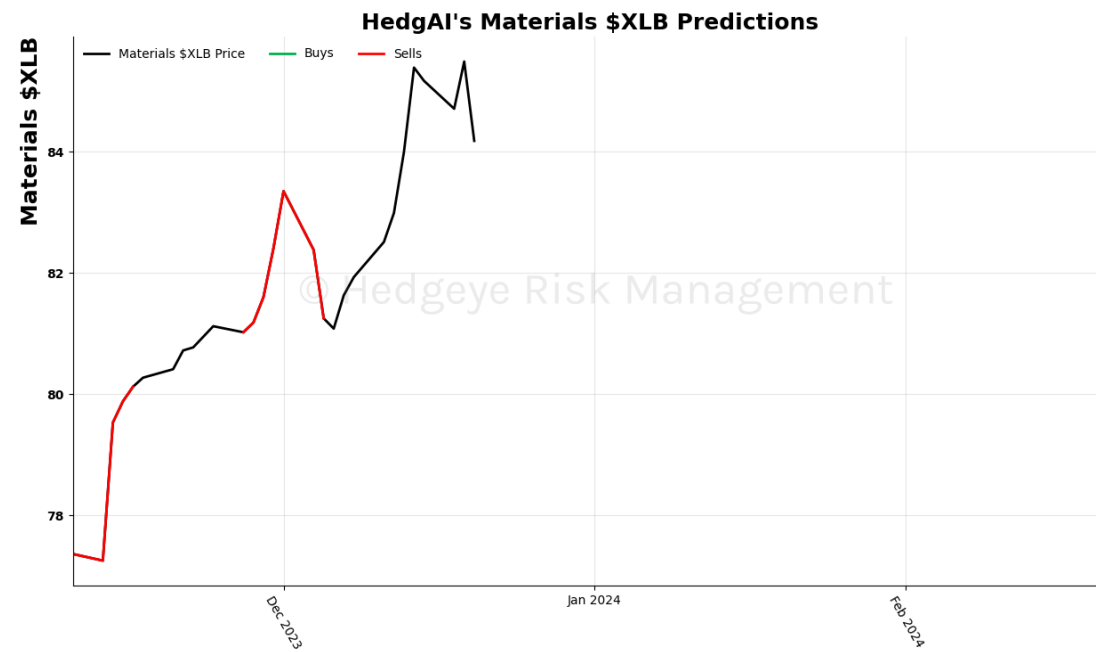
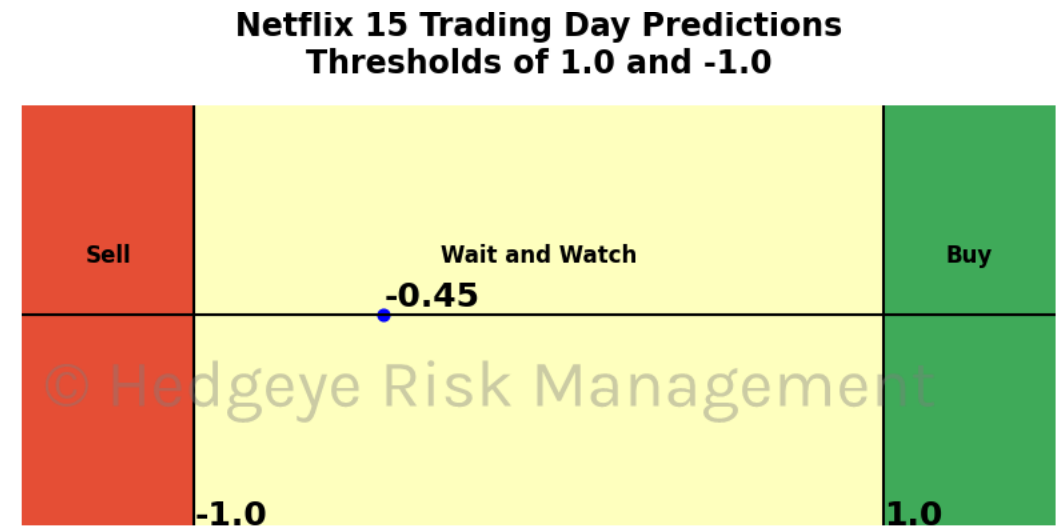
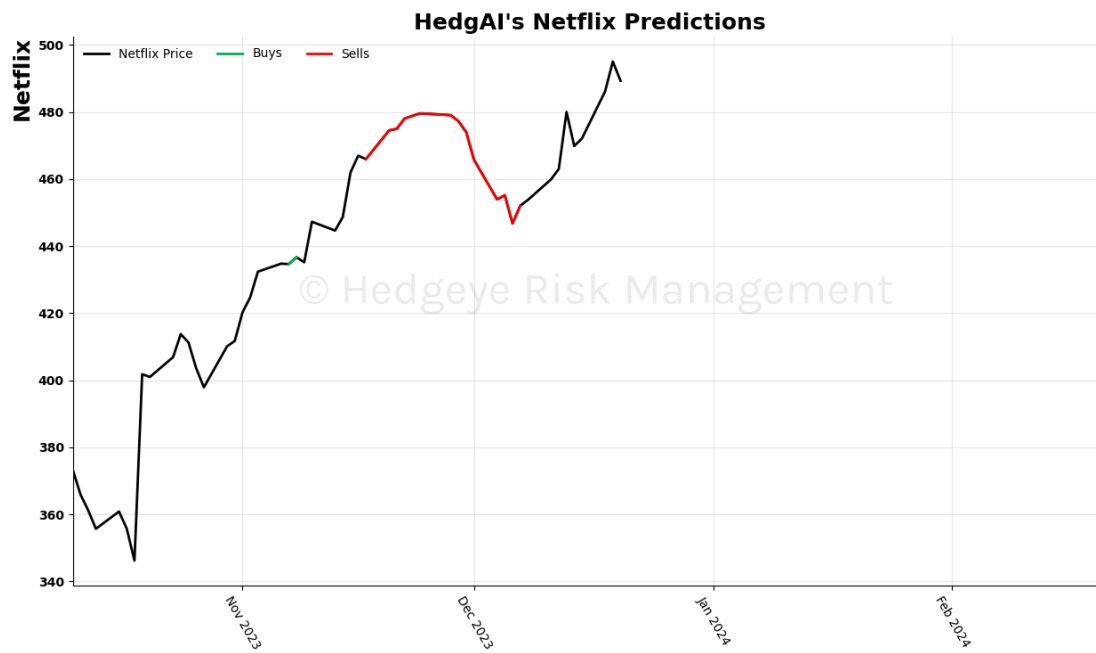


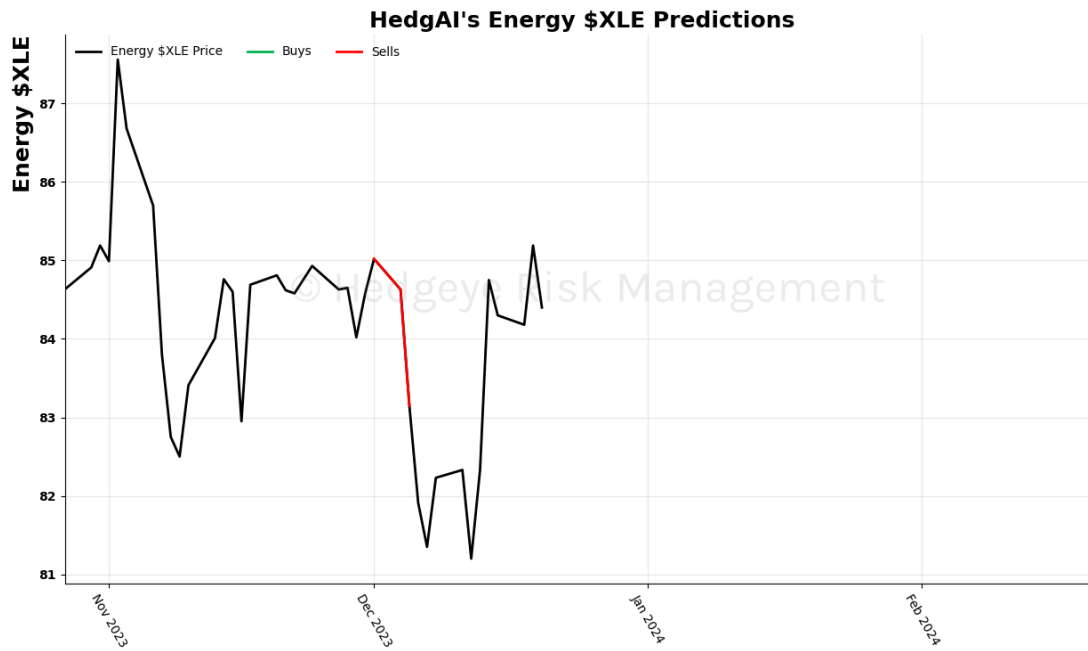




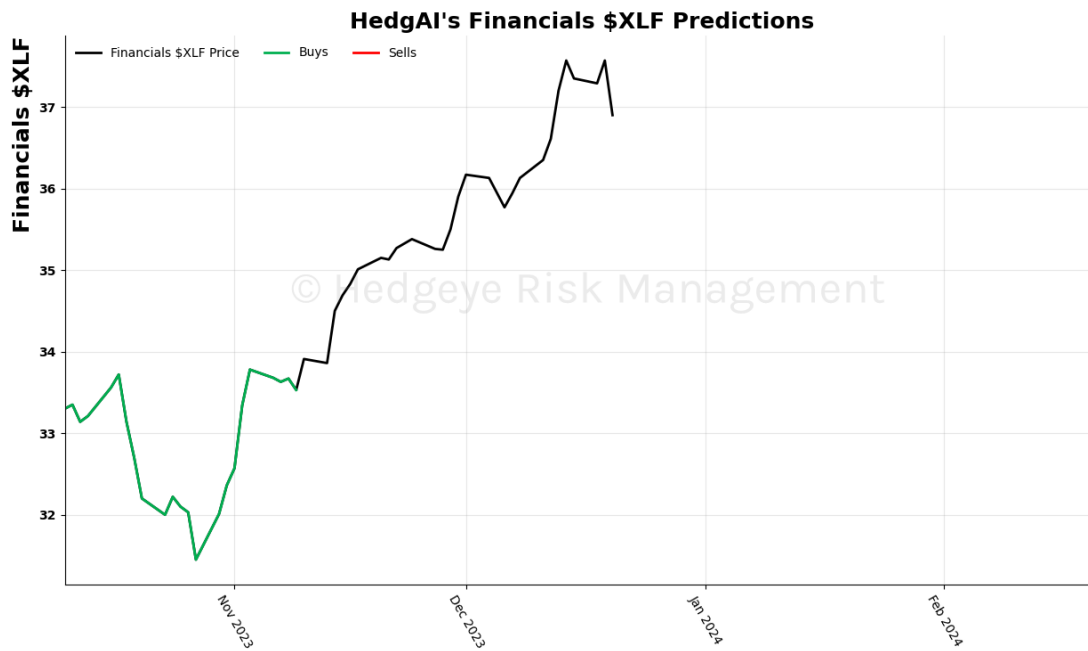




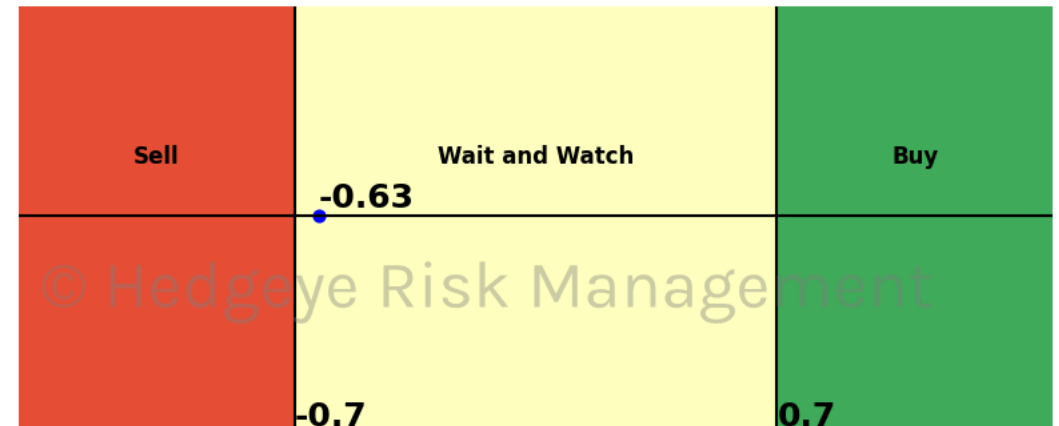


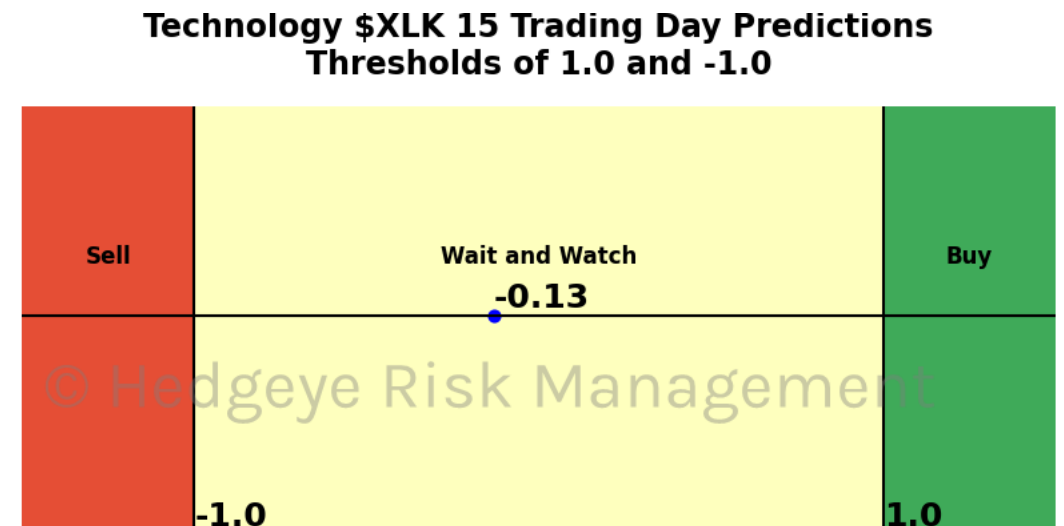
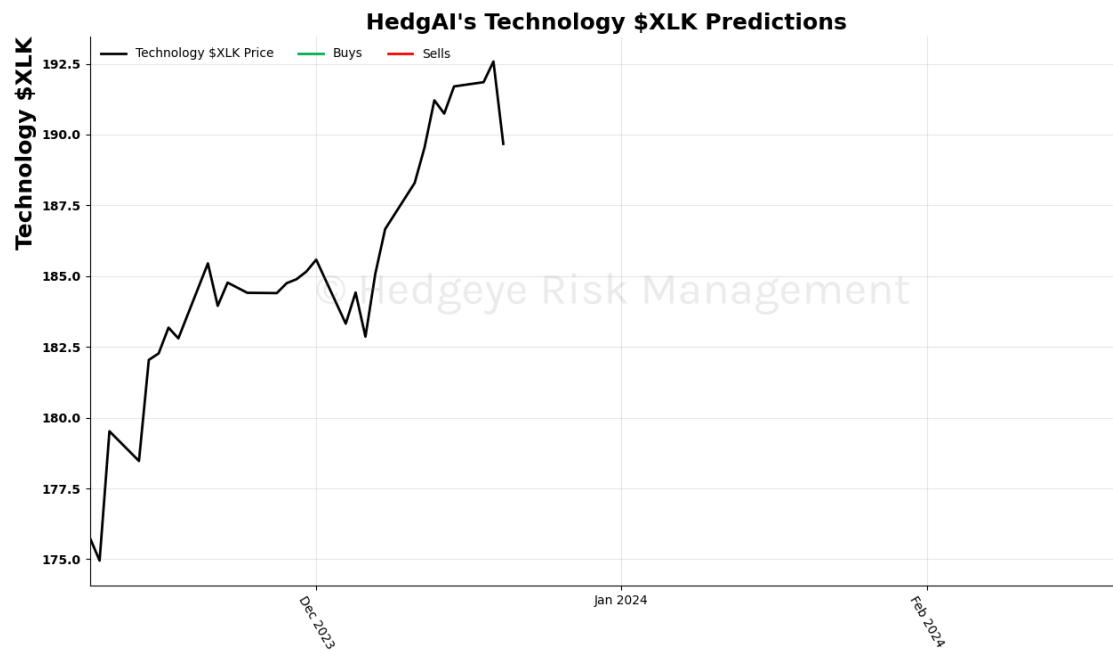
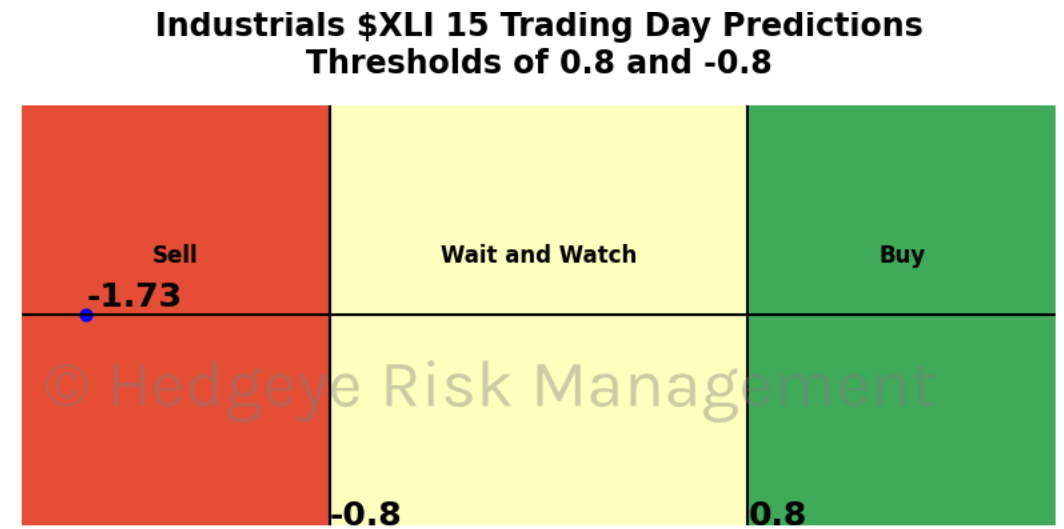
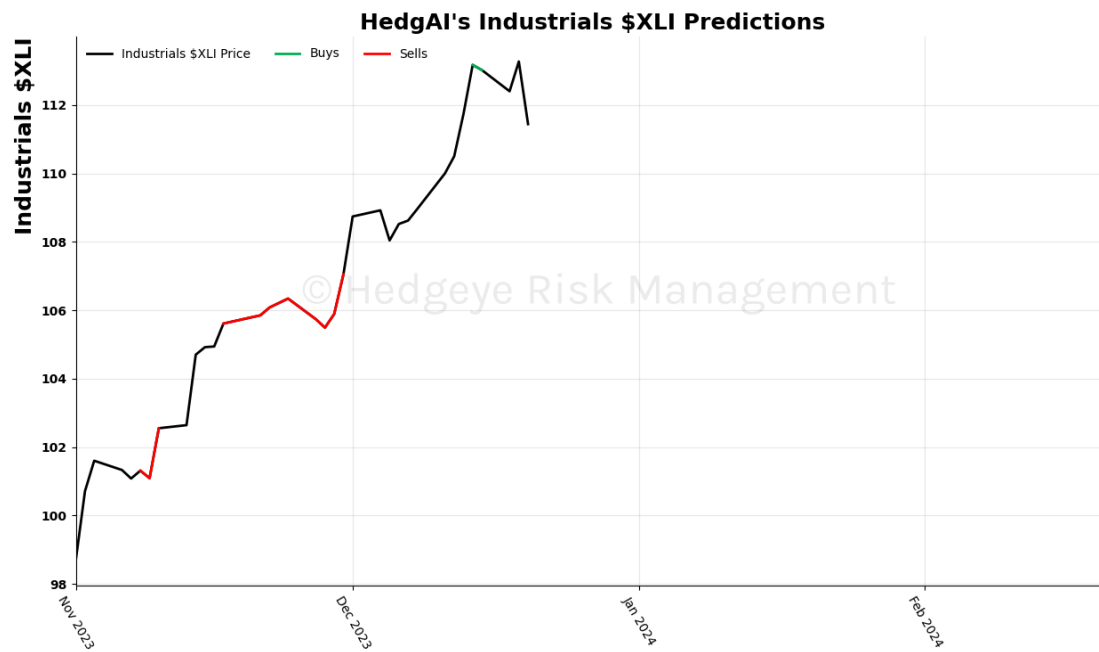


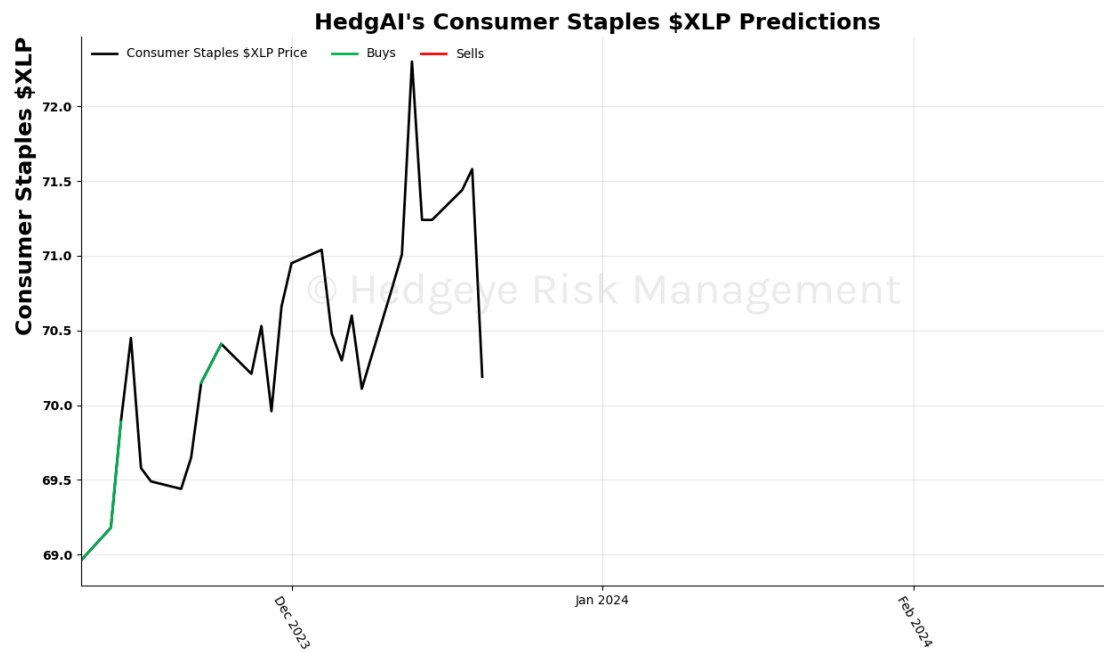
### Energy \$XLE 15 Trading Day Predictions Thresholds of 0.9 and -0.9



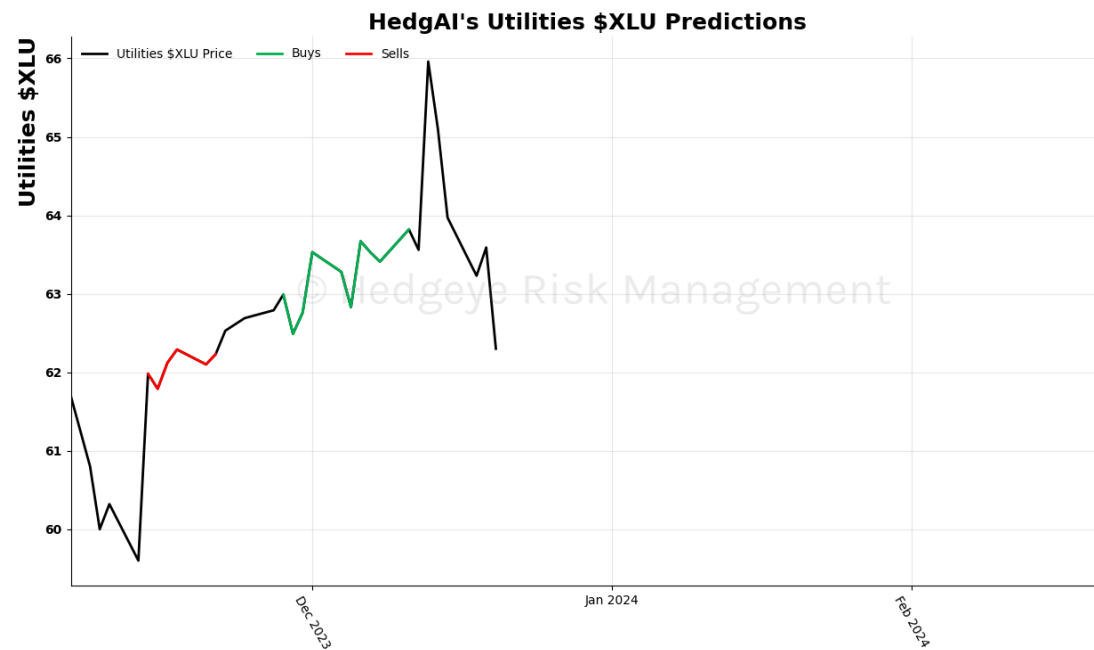
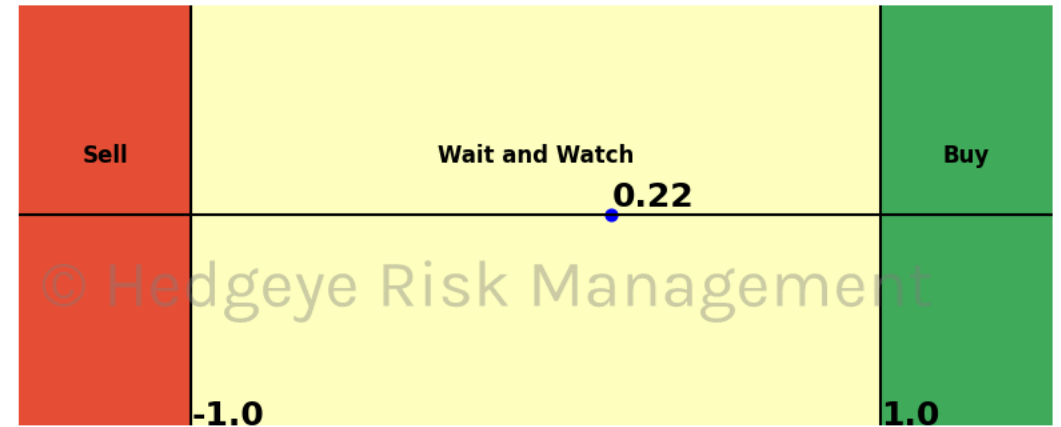
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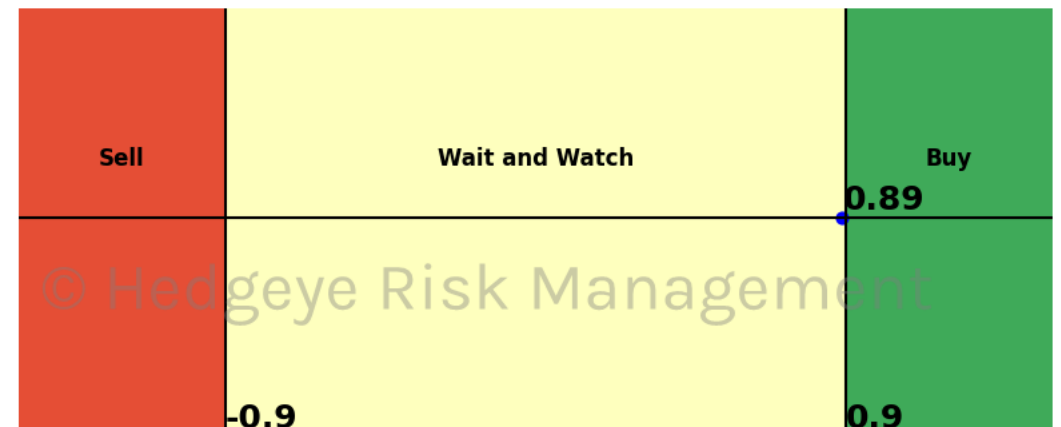


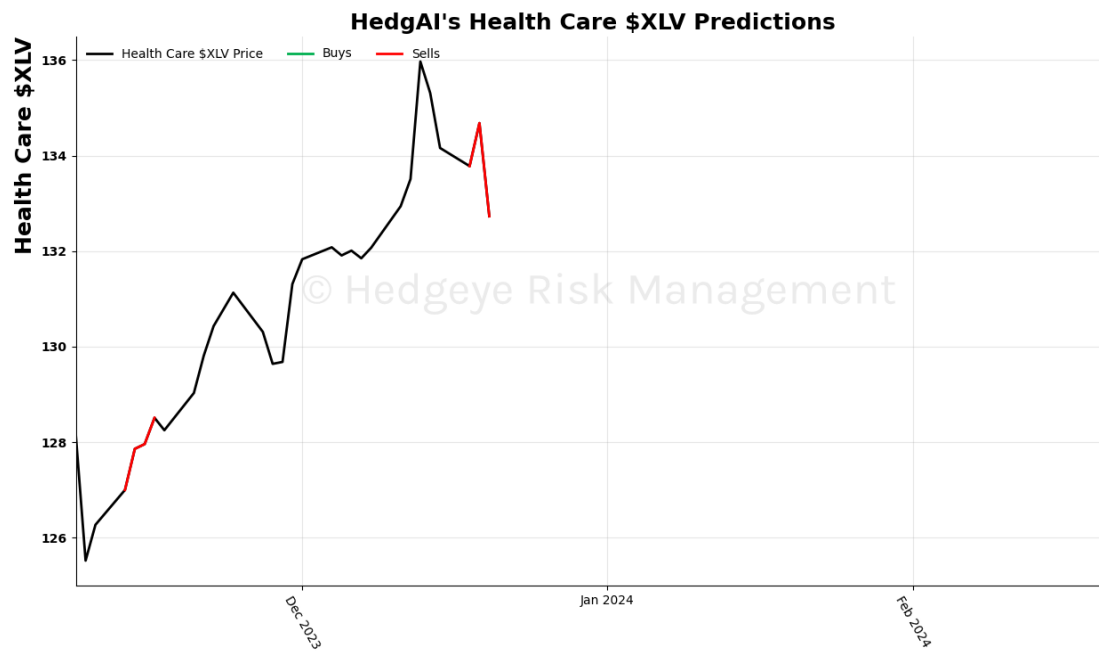


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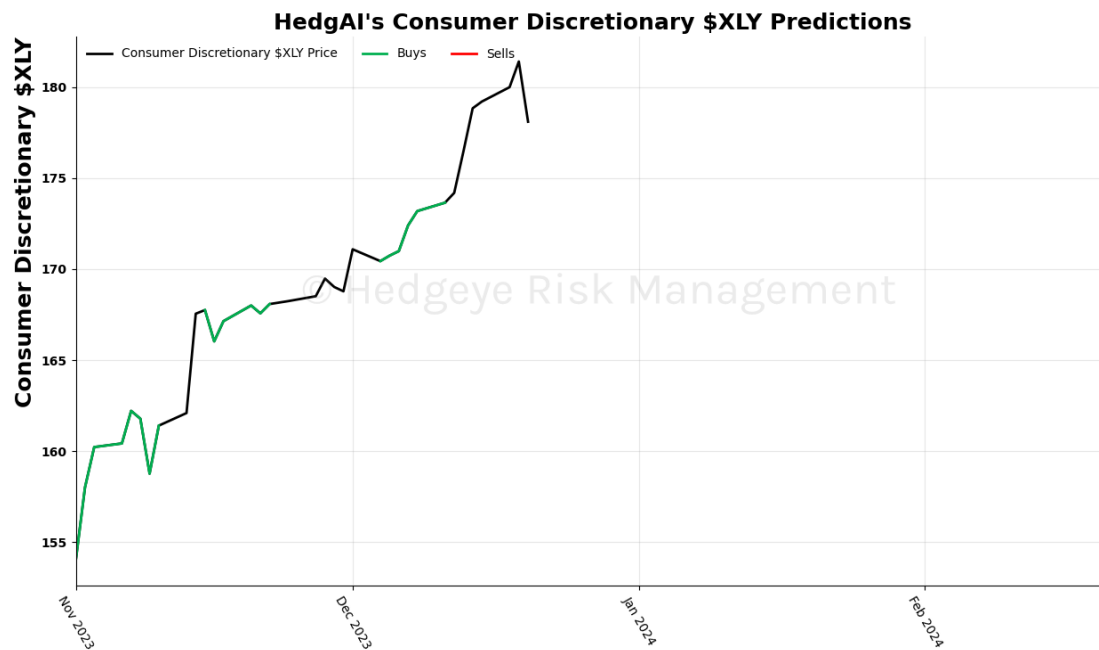


### Utilities \$XLU 15 Trading Day Predictions Thresholds of 0.9 and -0.9

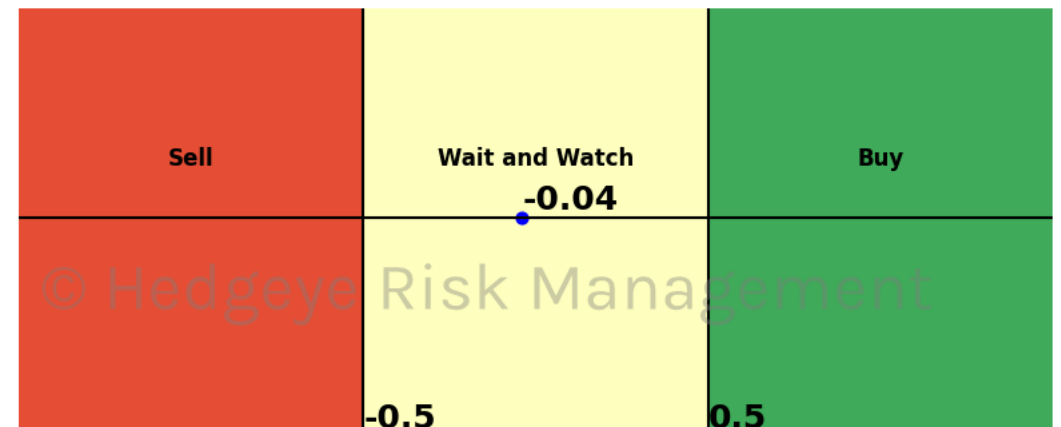


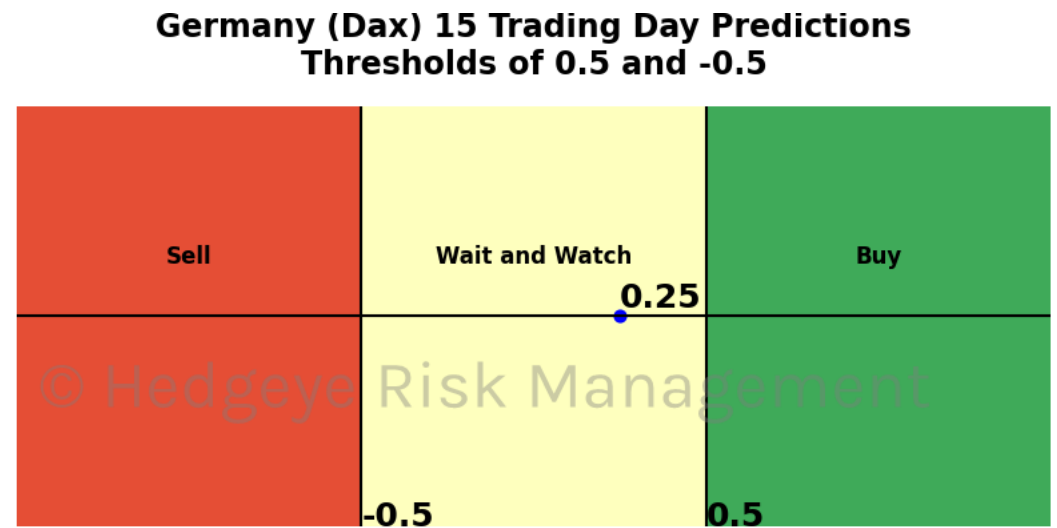
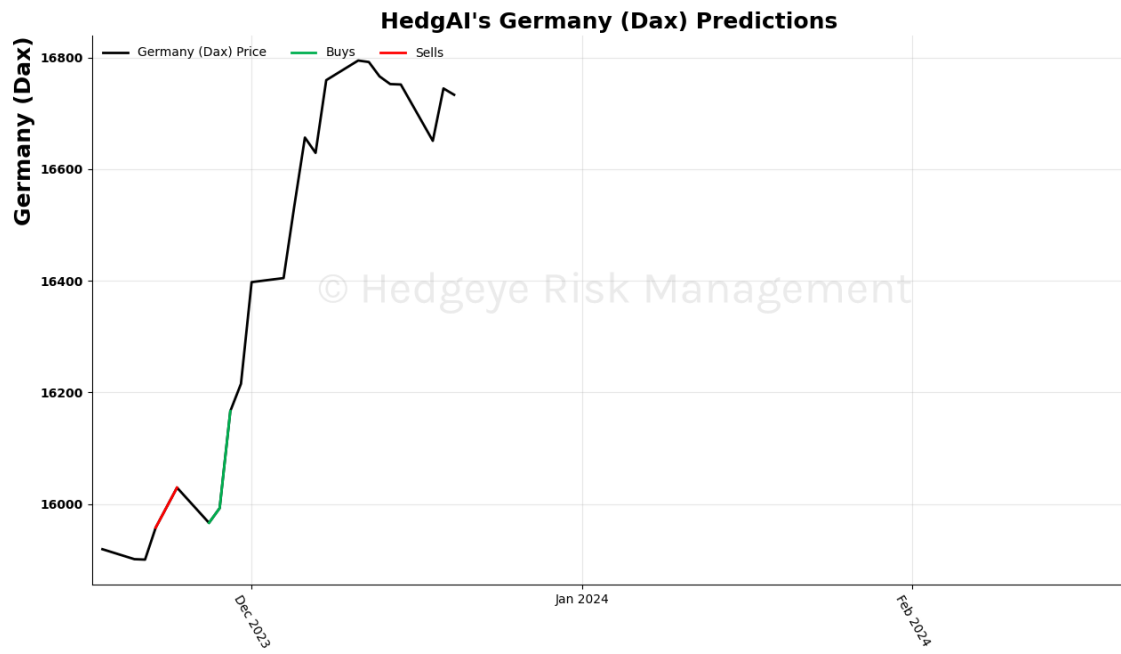
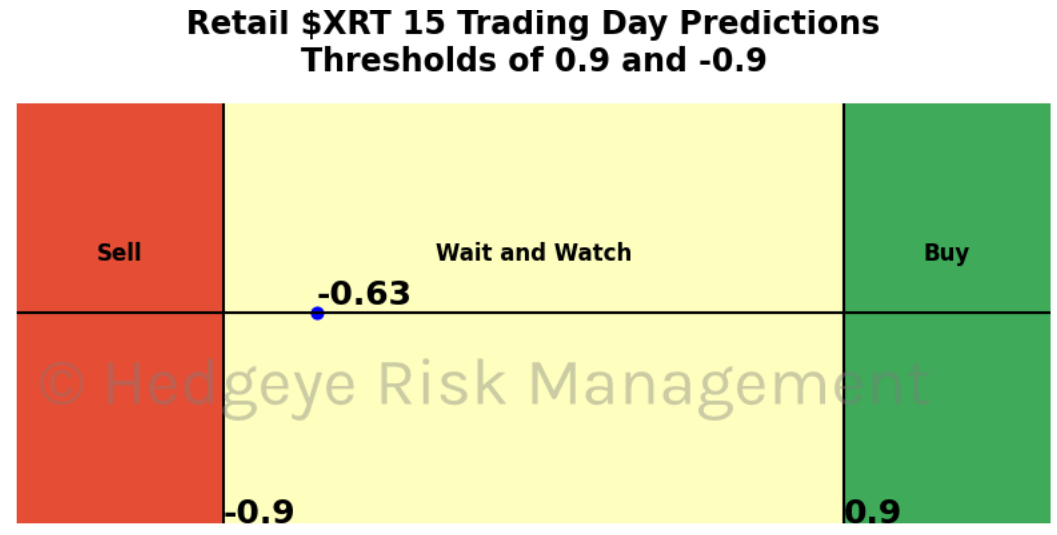
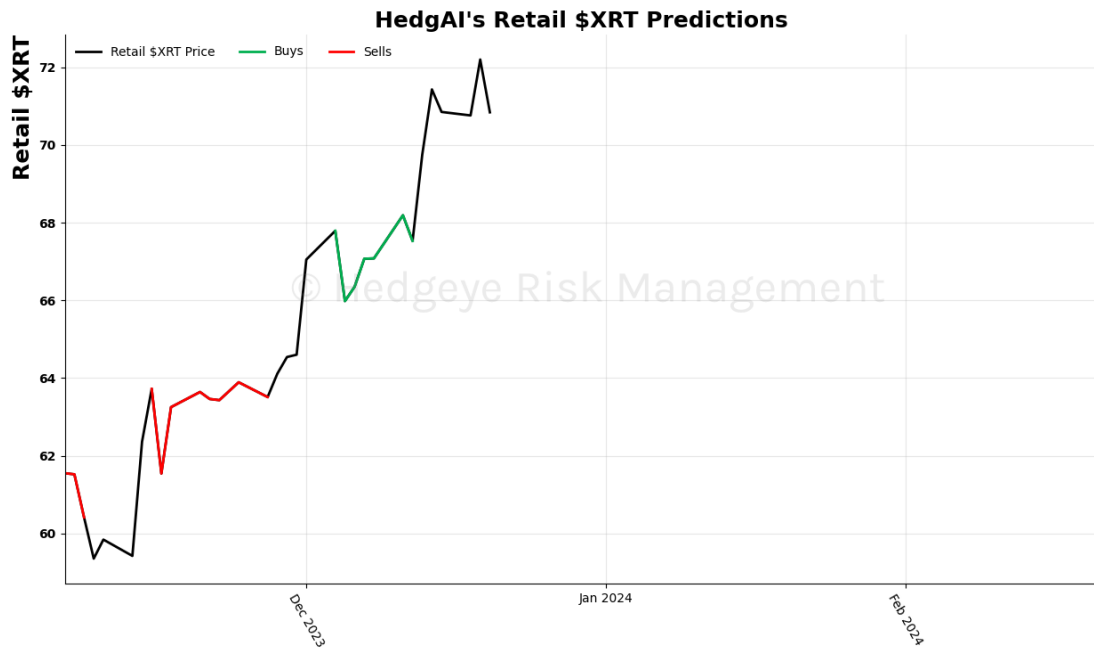


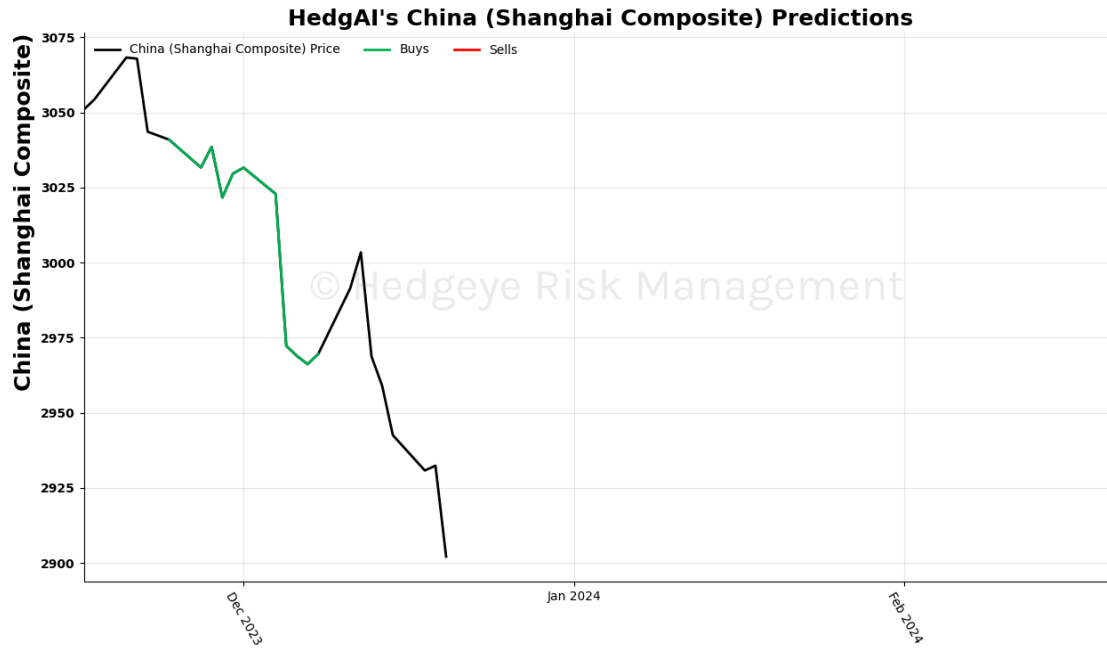
### Health Care \$XLV 15 Trading Day Predictions Thresholds of 0.9 and -0.9



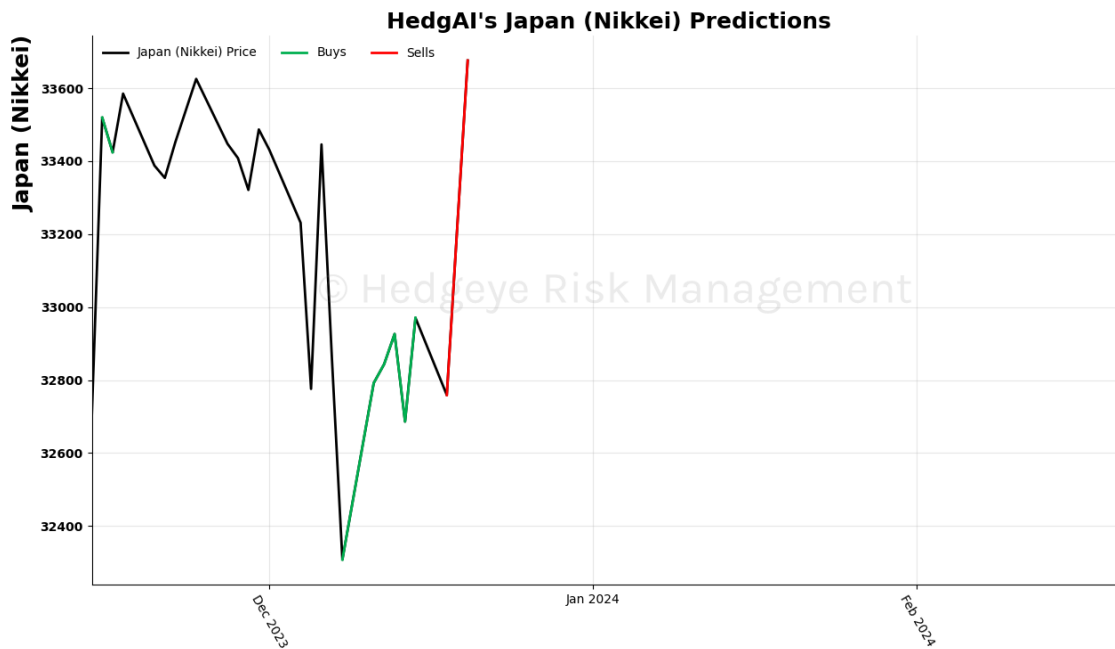
### Consumer Discretionary \$XLY 15 Trading Day Predictions Thresholds of 0.5 and -0.5



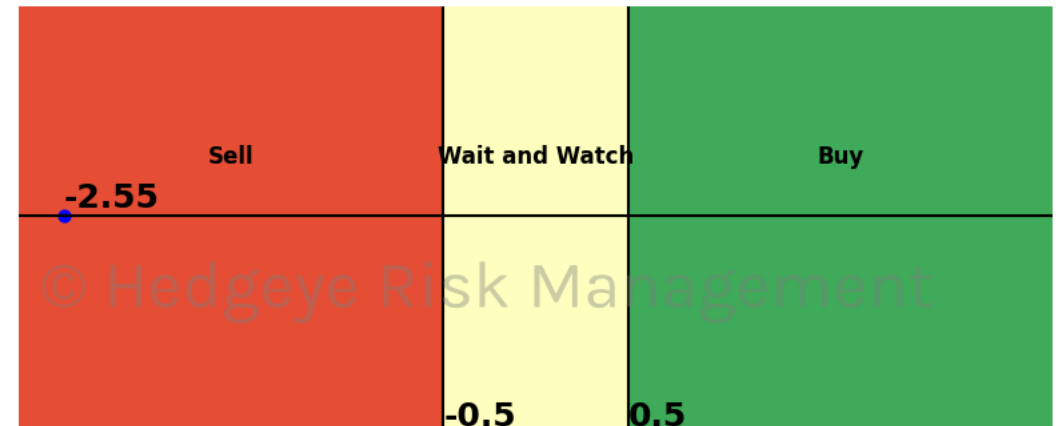




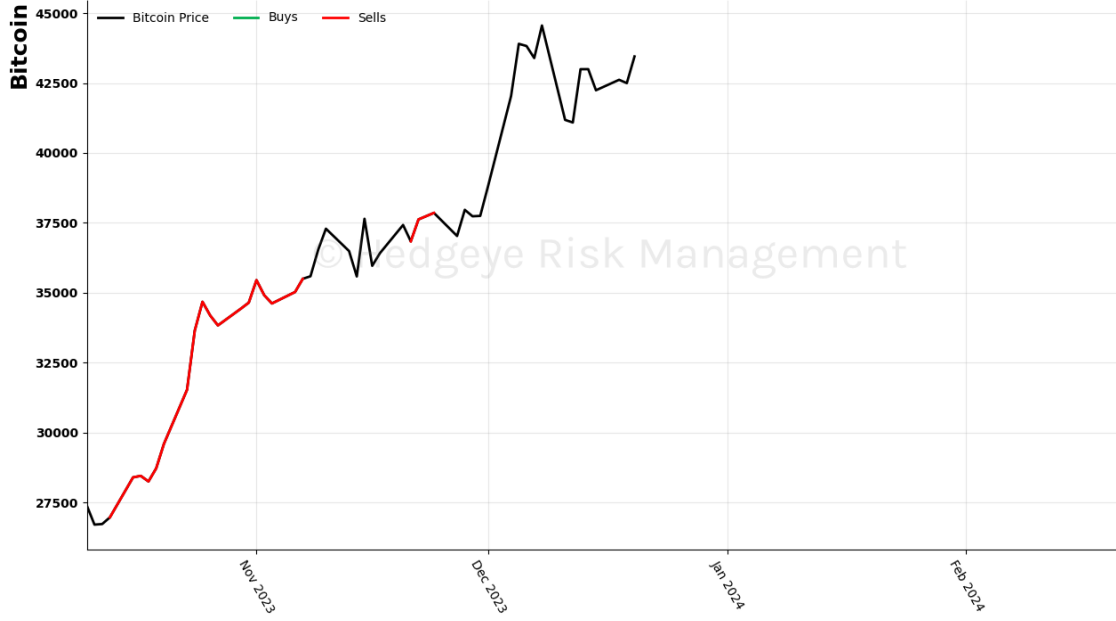
### China (Shanghai Composite) 15 Trading Day Predictions Thresholds of 1.0 and -1.0



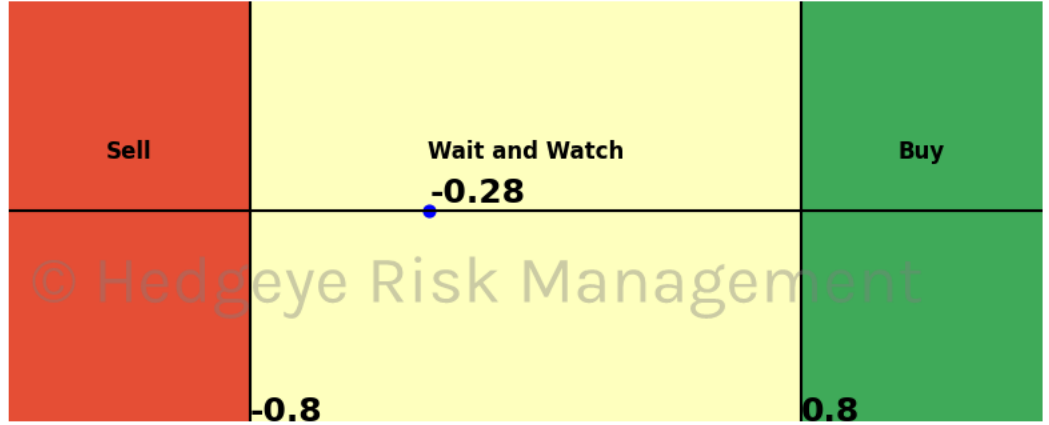
### Japan (Nikkei) 15 Trading Day Predictions Thresholds of 0.5 and -0.5



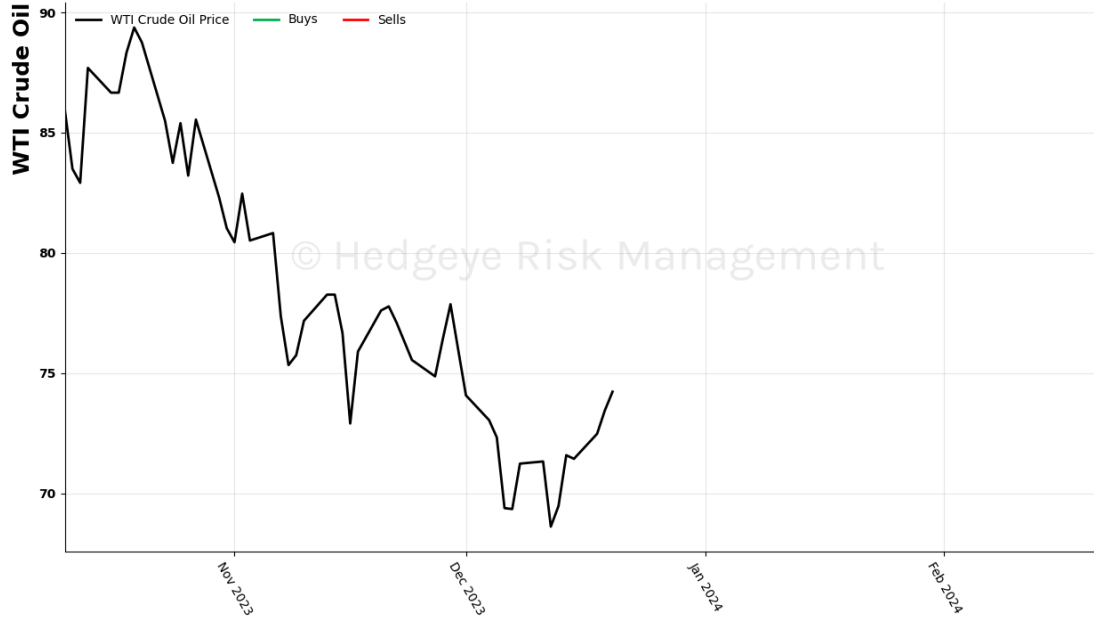
HedAI's Bitcoin Predictions



Bitcoin 15 Trading Day Predictions  
Thresholds of 0.8 and -0.8



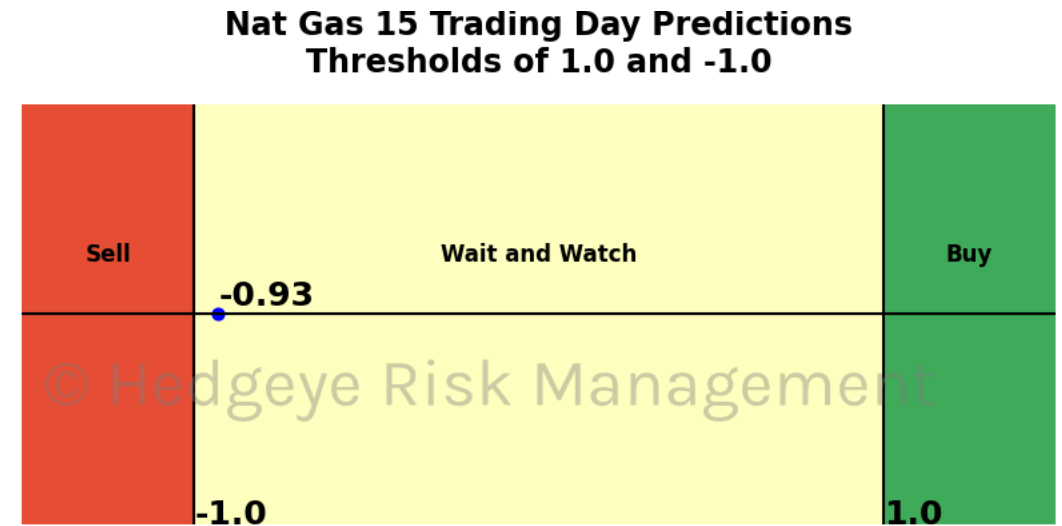
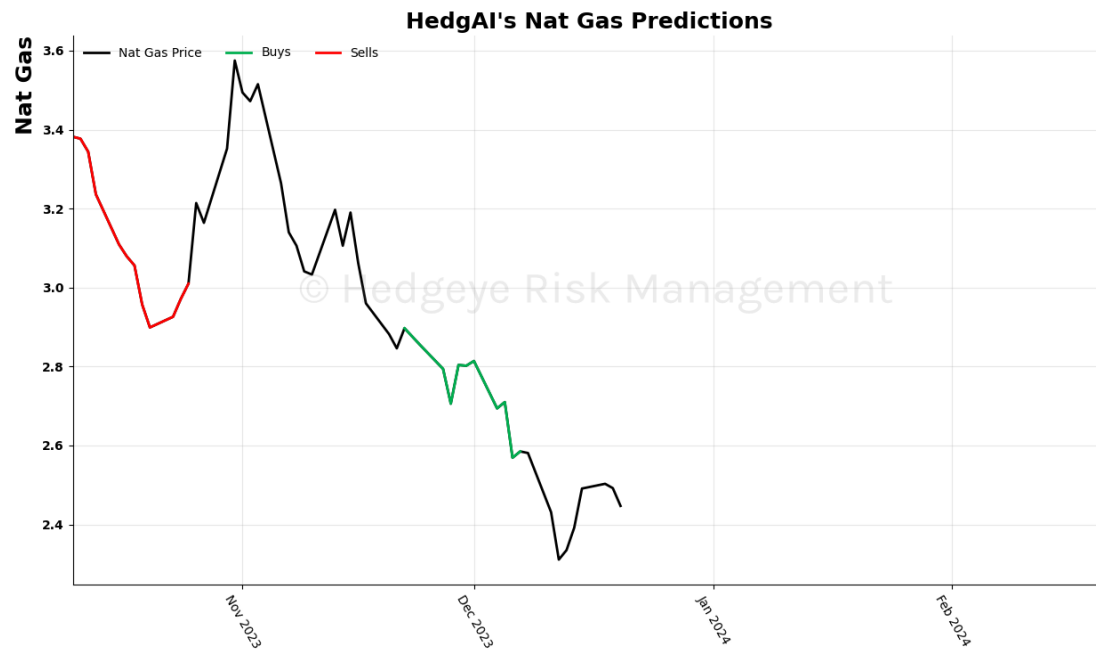
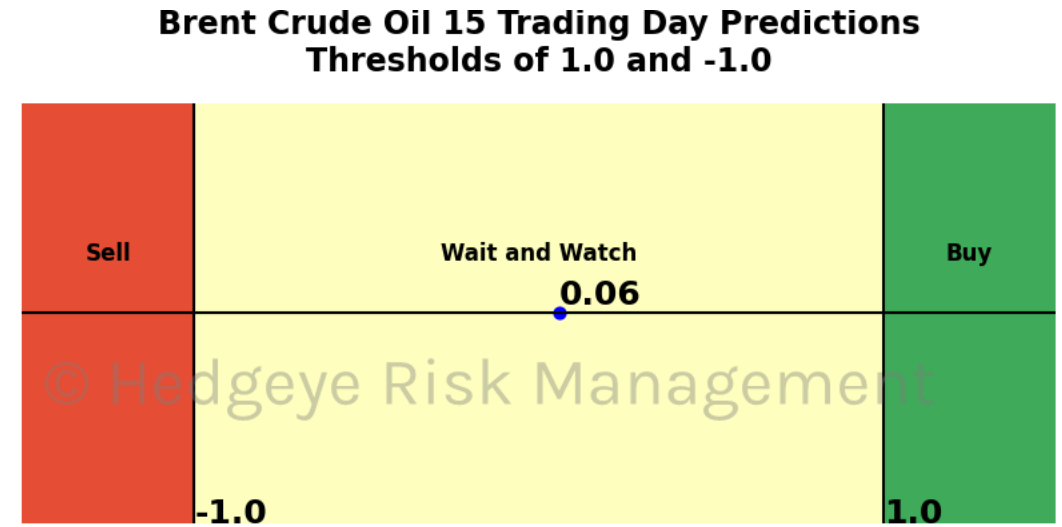
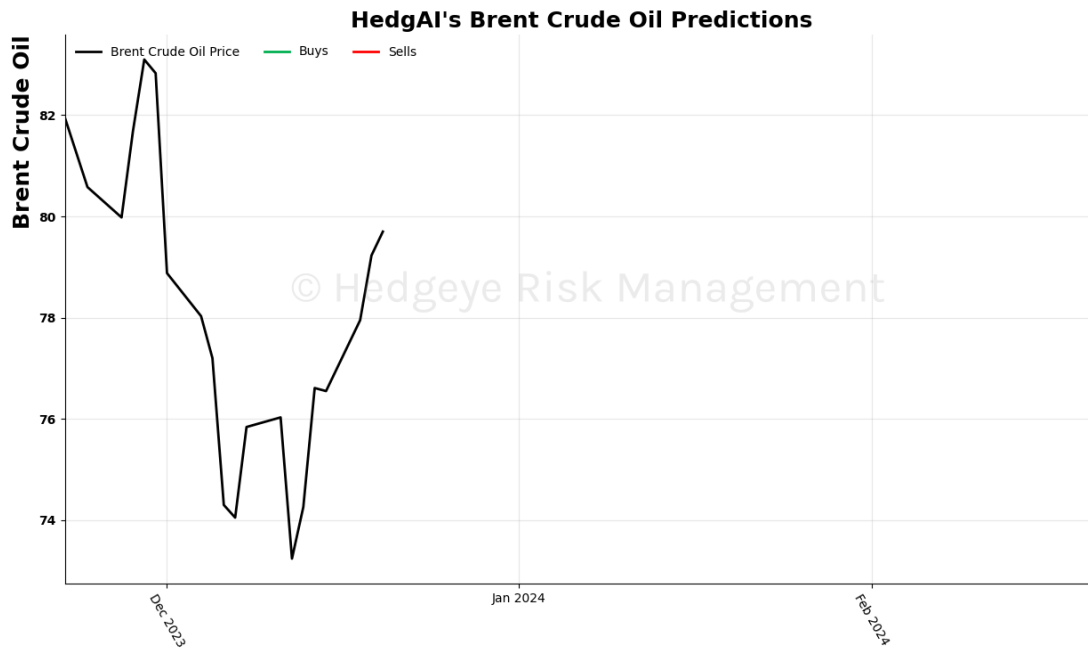
HedAI's WTI Crude Oil Predictions

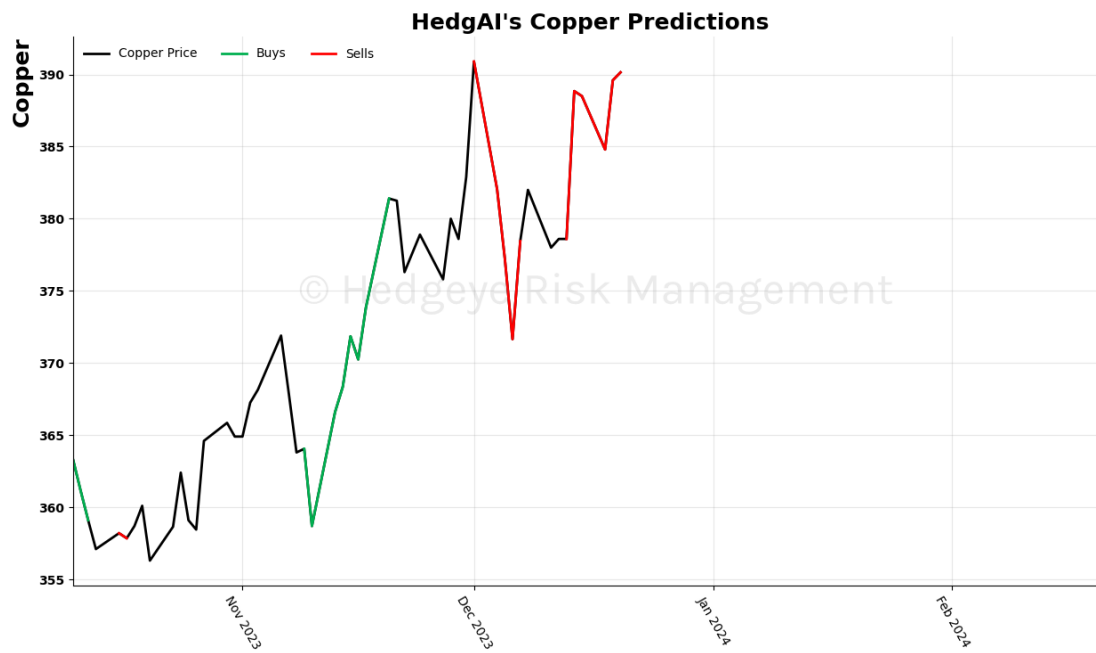


WTI Crude Oil 15 Trading Day Predictions  
Thresholds of 1.0 and -1.0

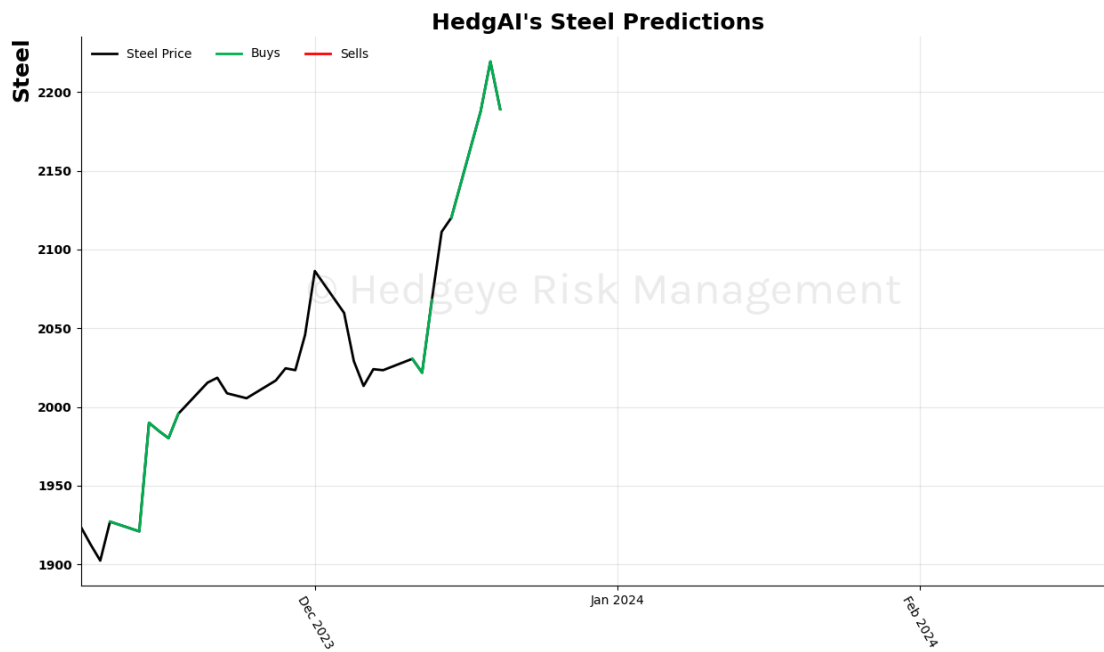
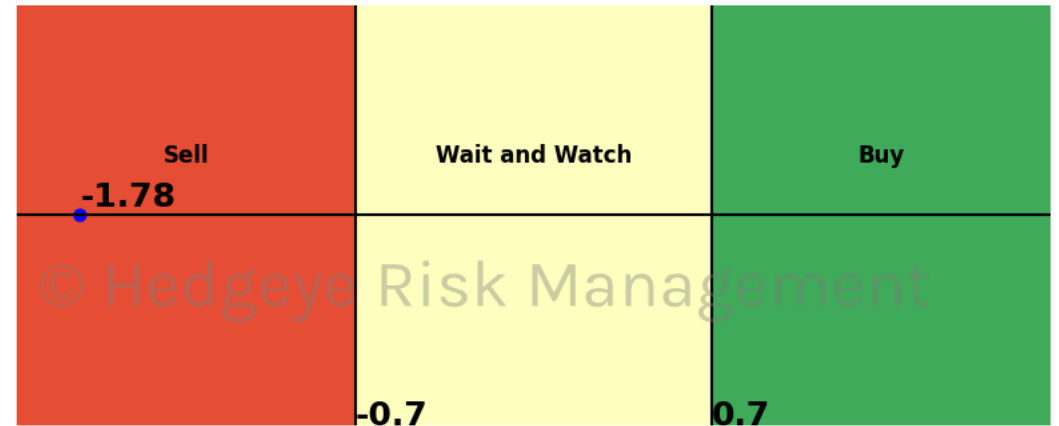




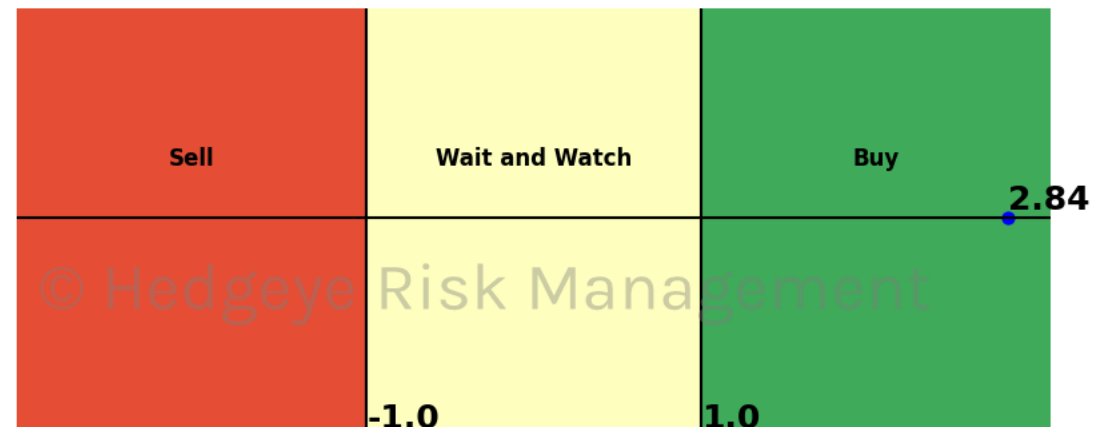


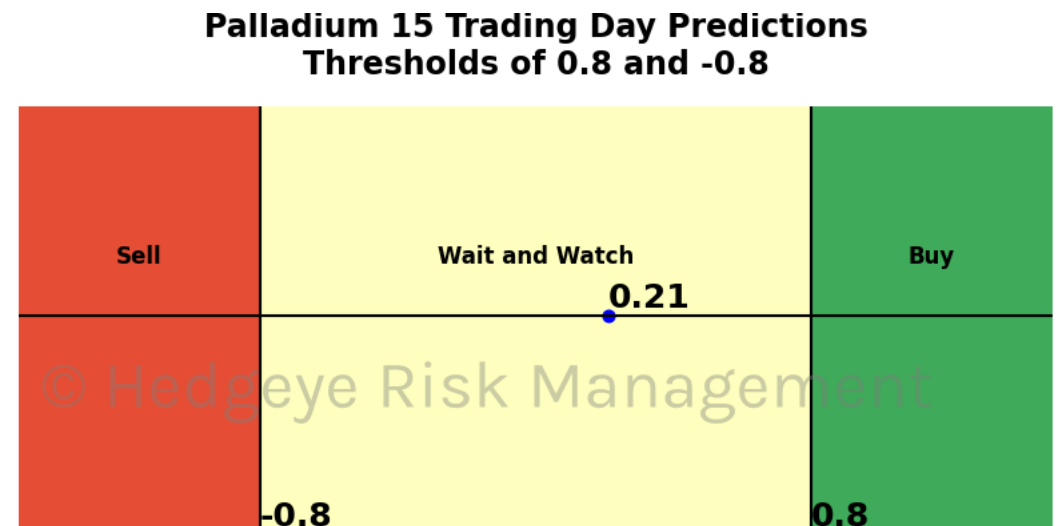
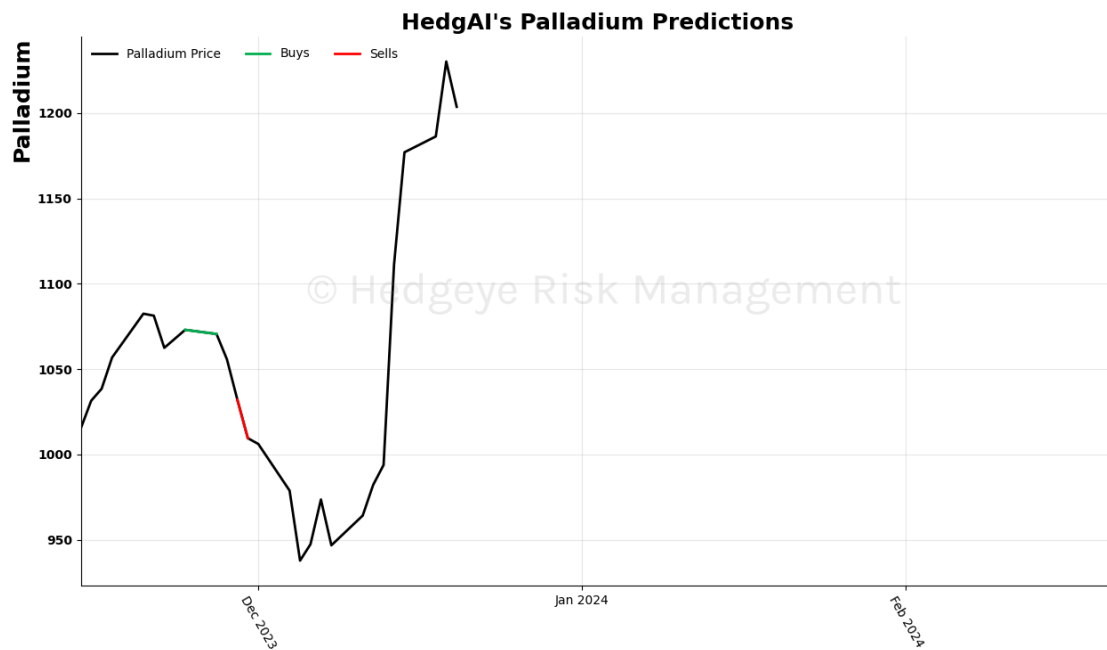
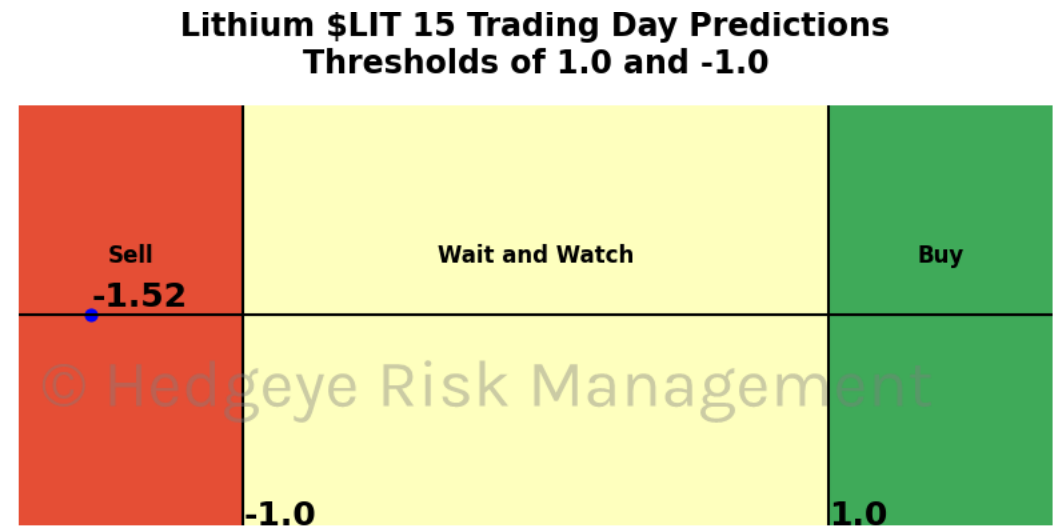
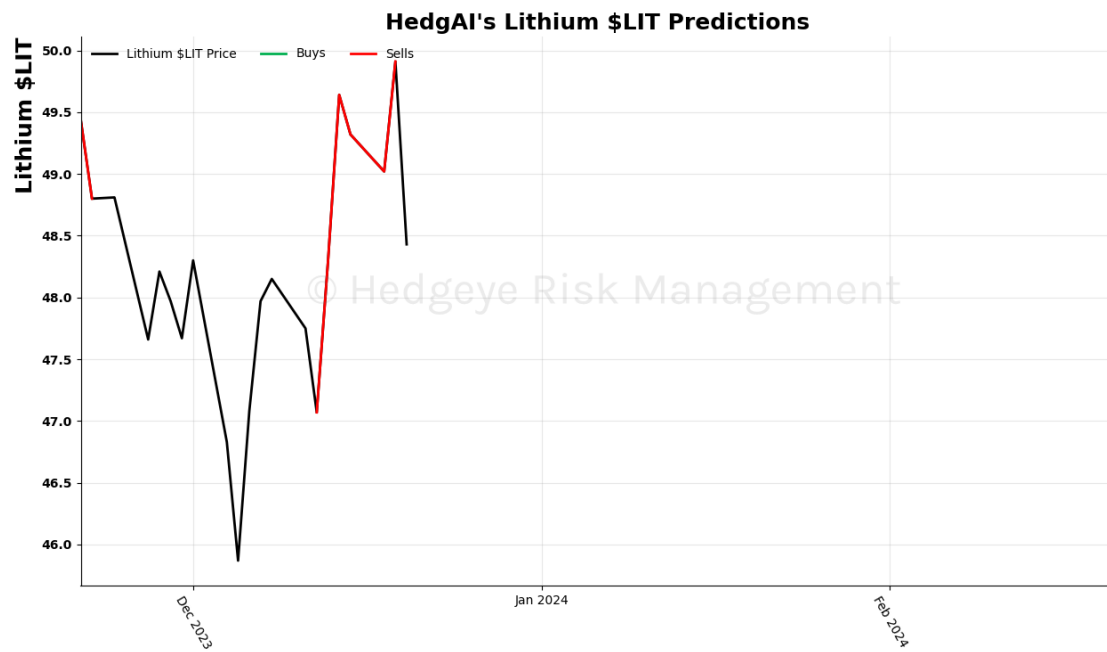


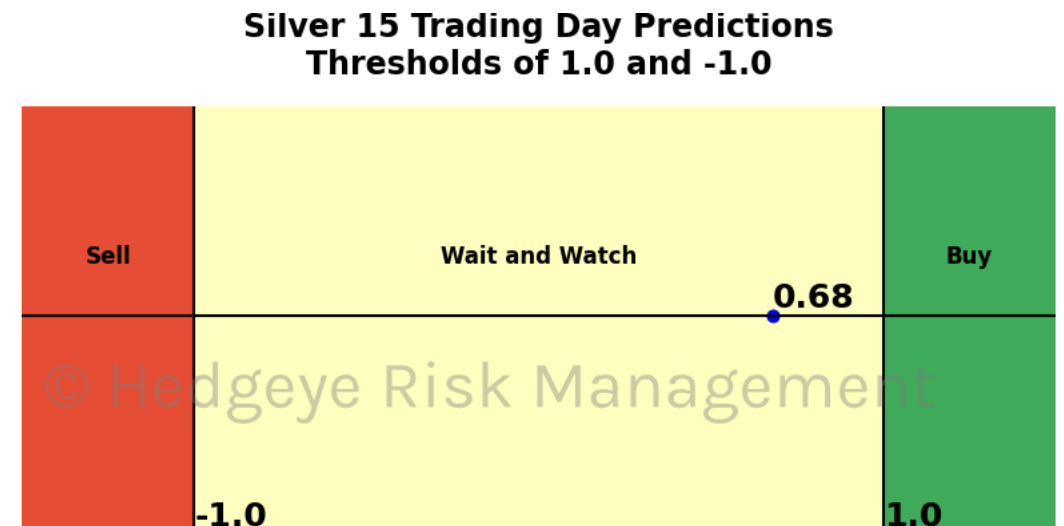
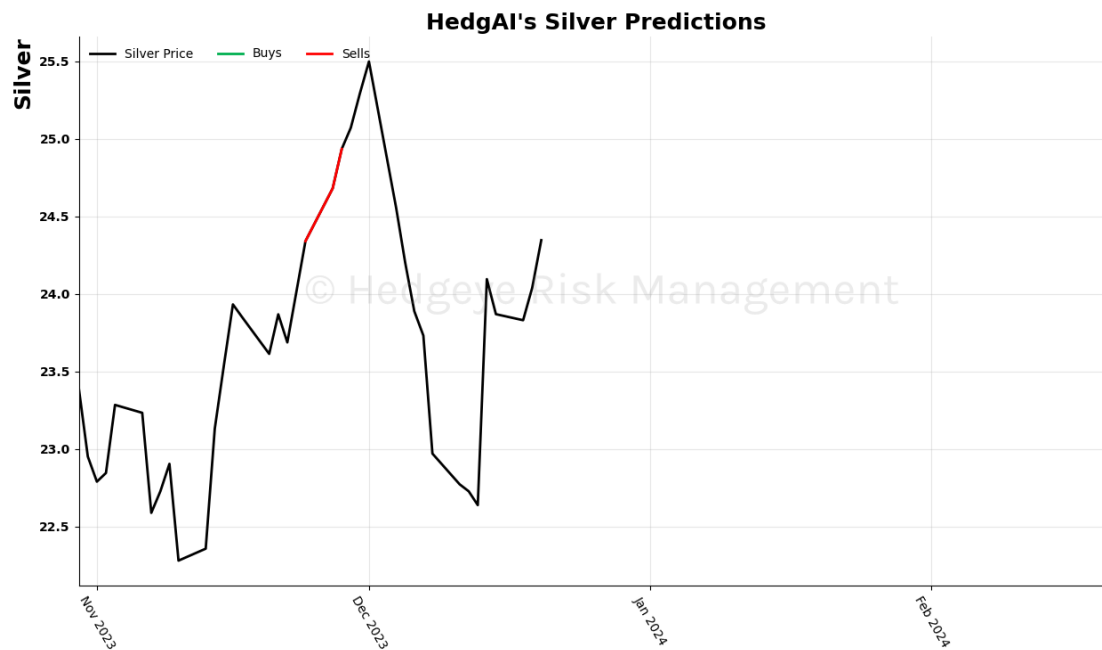
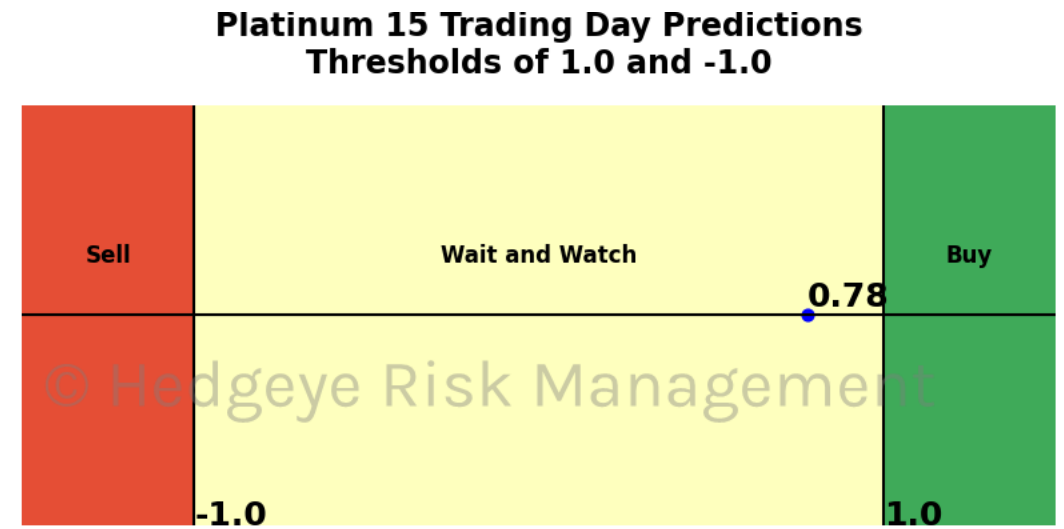
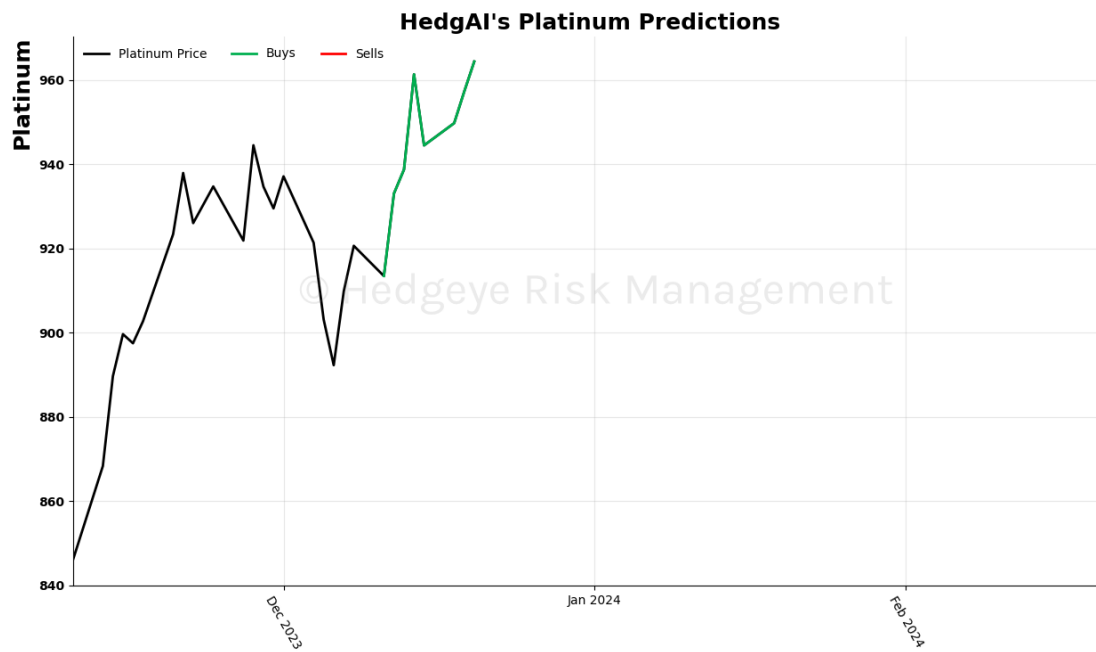
### Copper 15 Trading Day Predictions Thresholds of 0.7 and -0.7

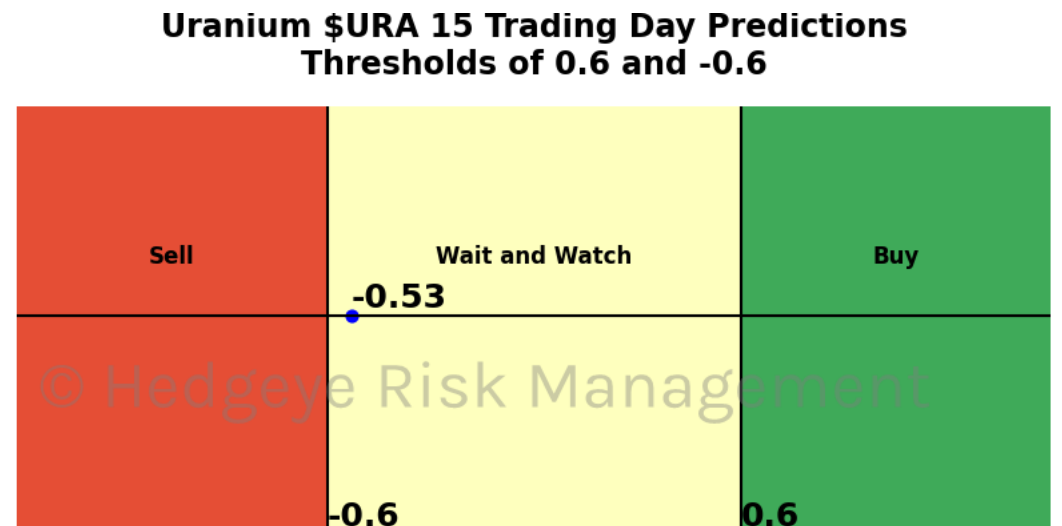
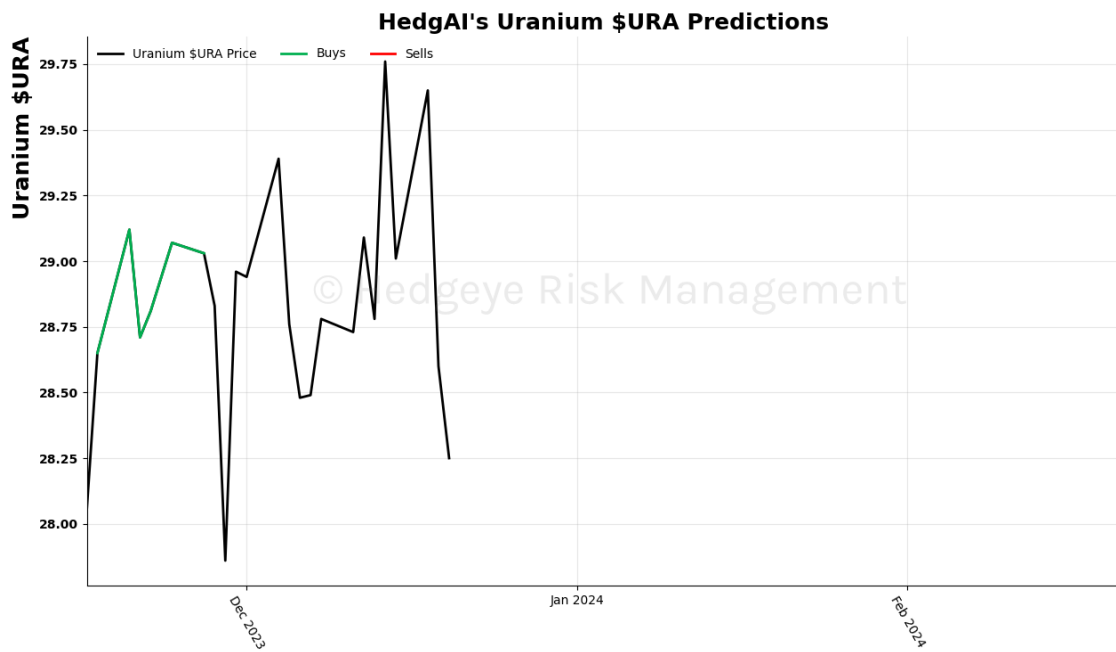
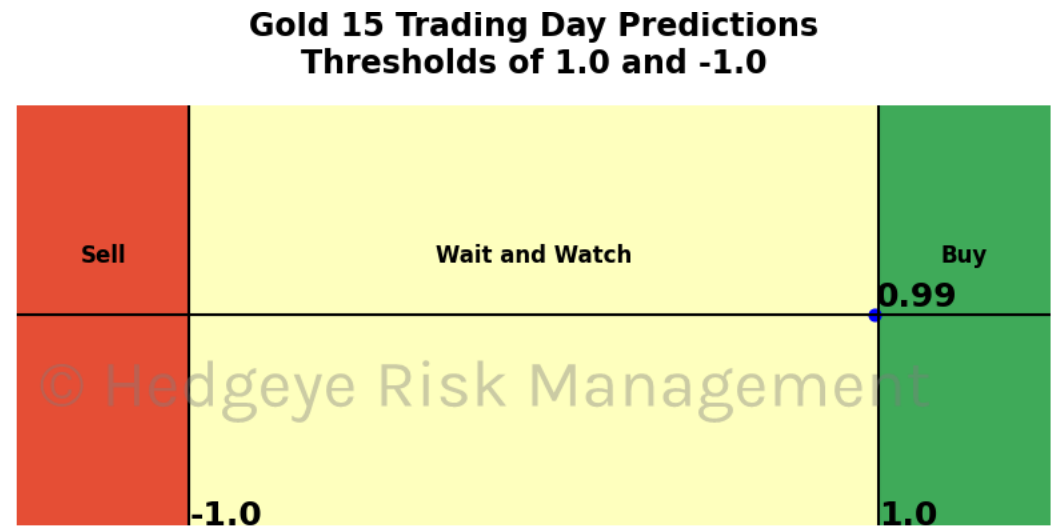
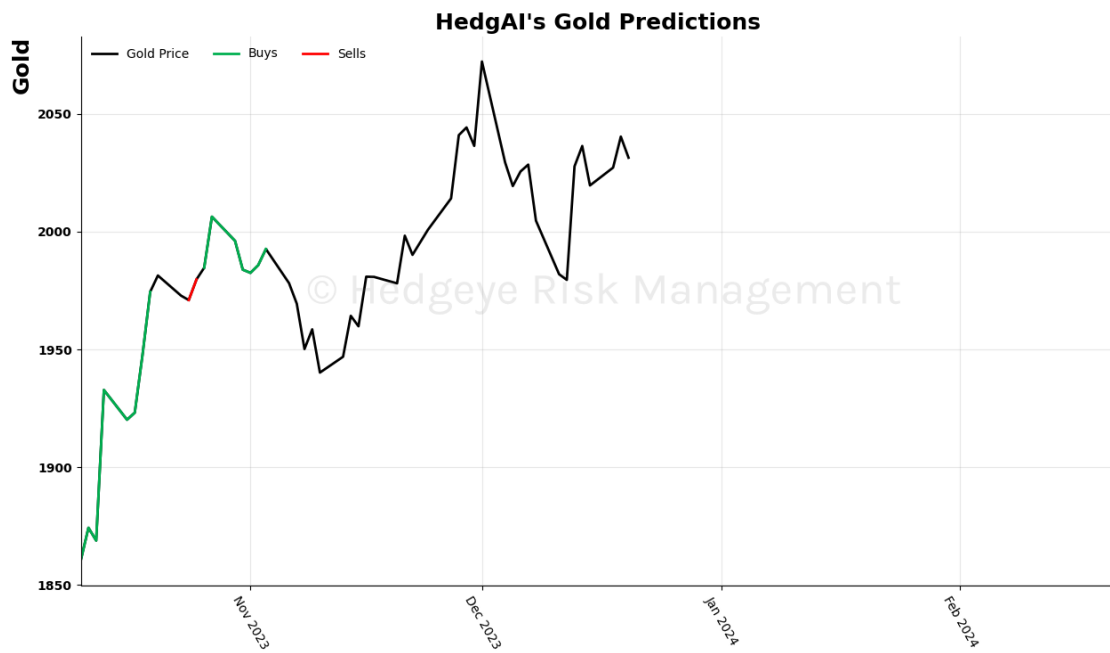


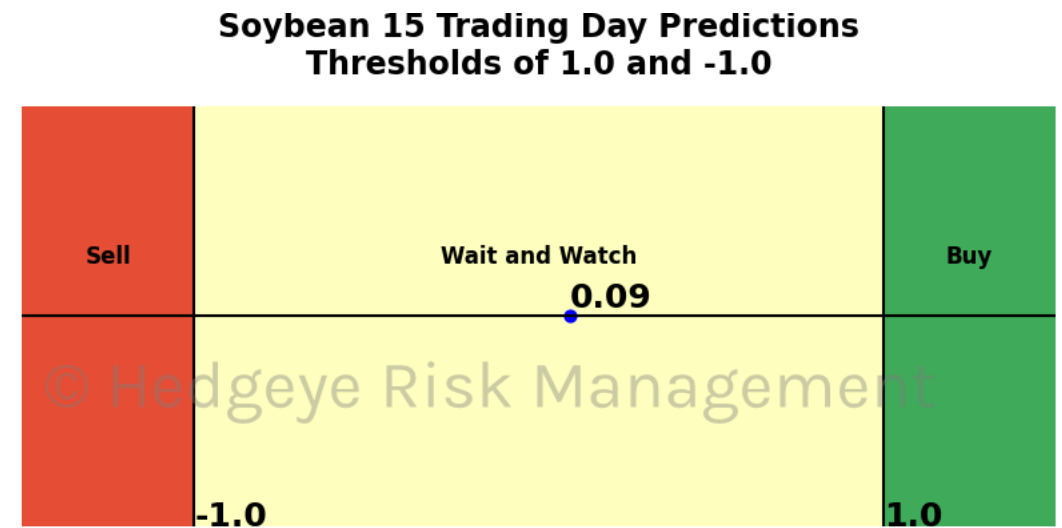
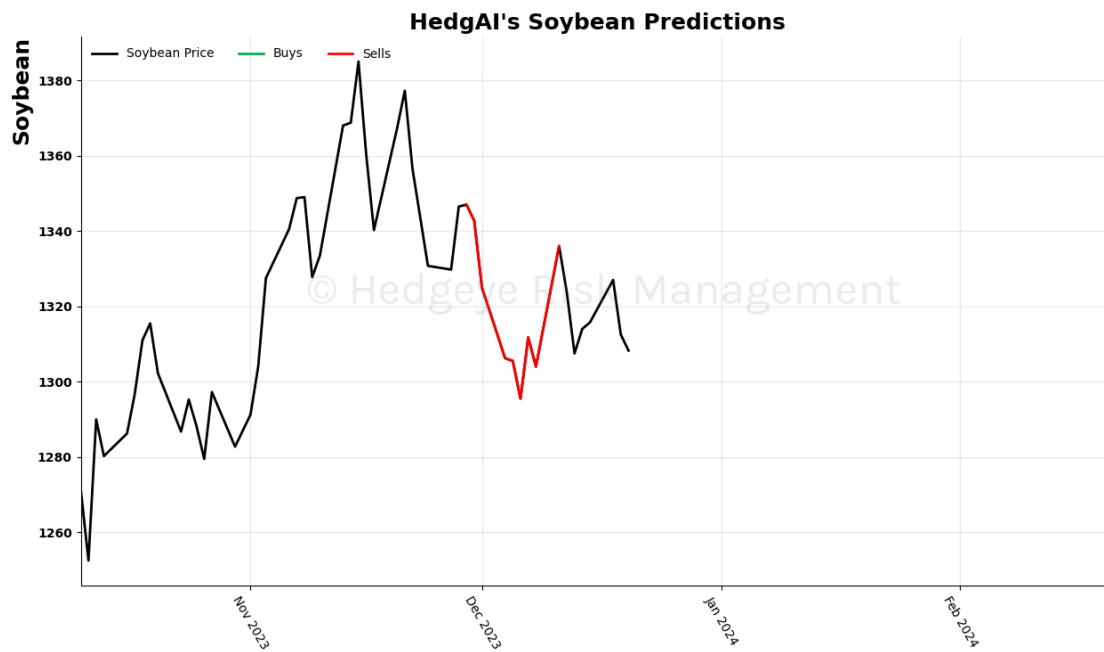
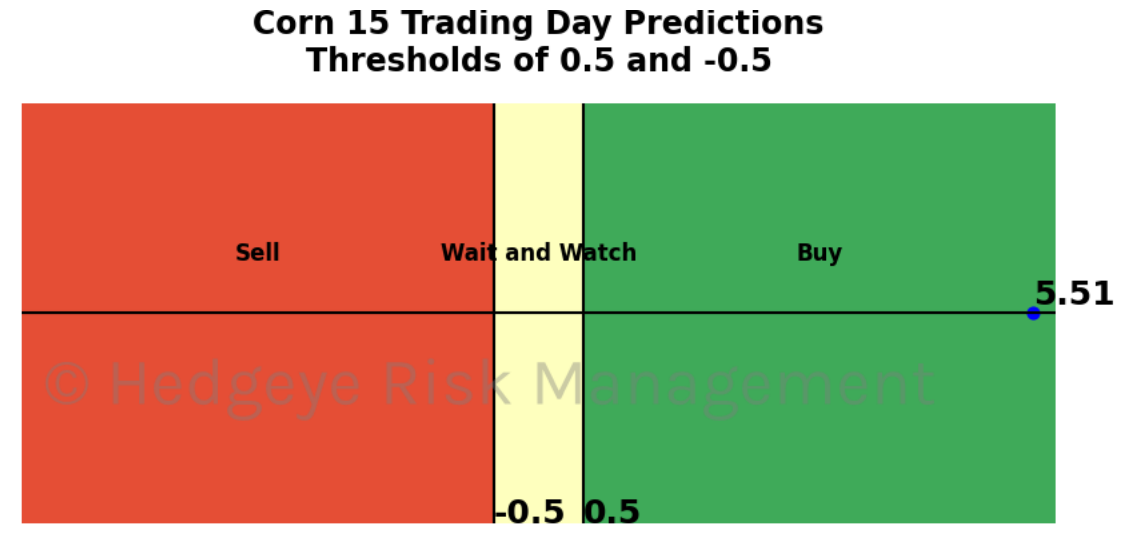
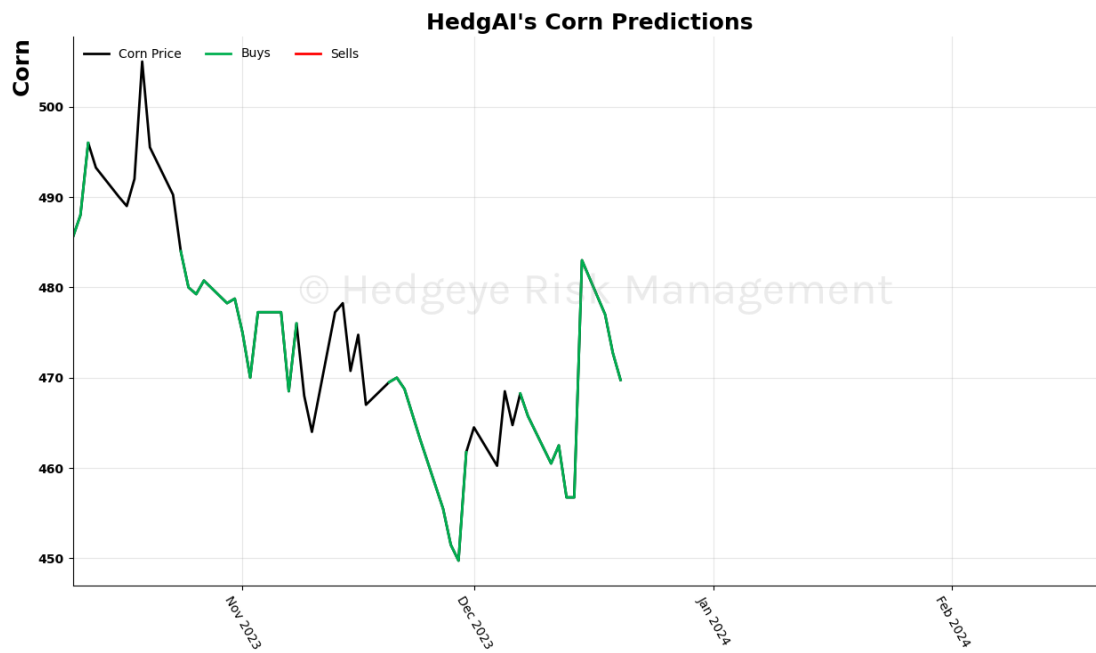
### Steel 15 Trading Day Predictions Thresholds of 1.0 and -1.0

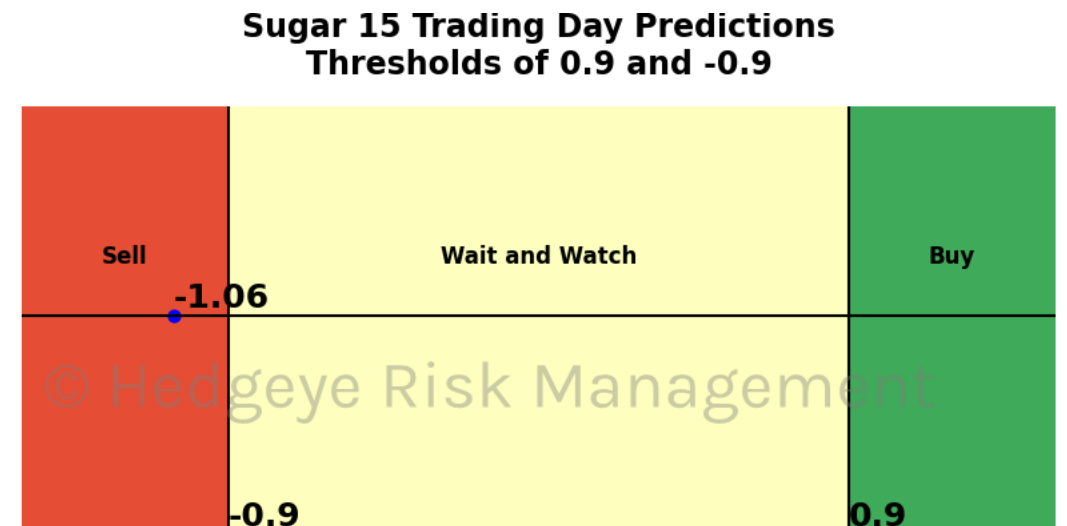
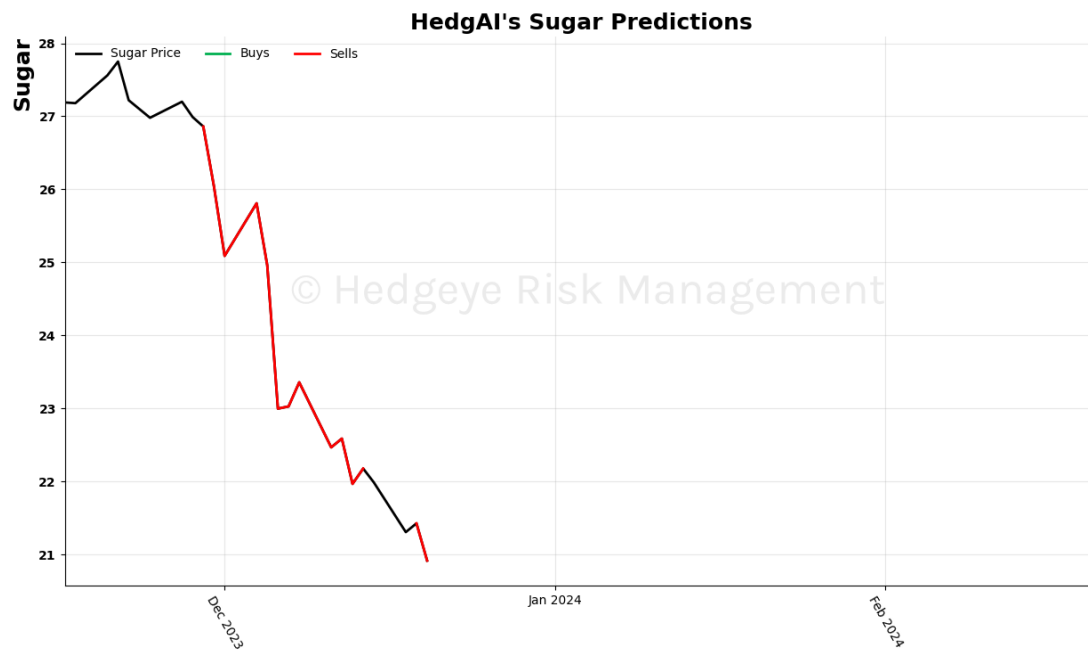
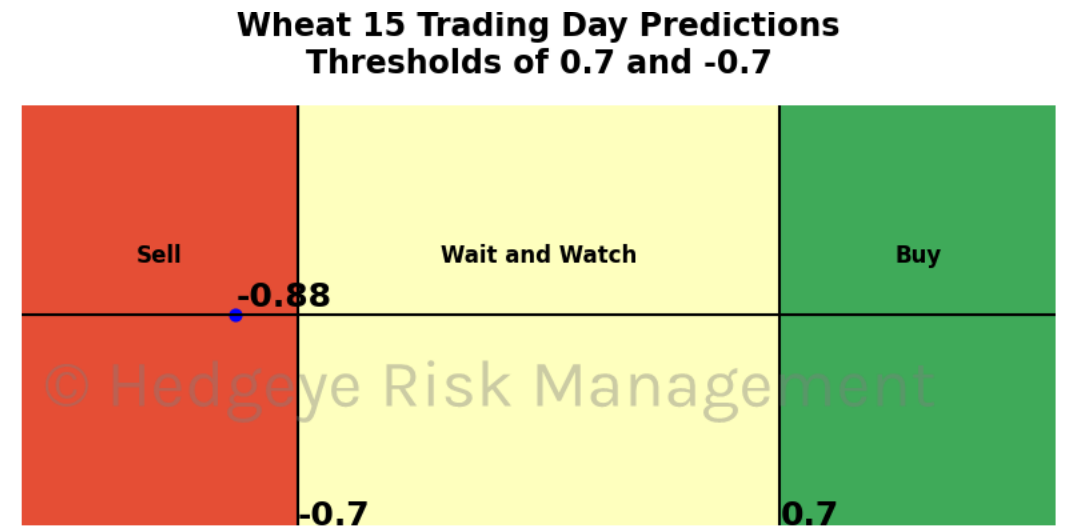
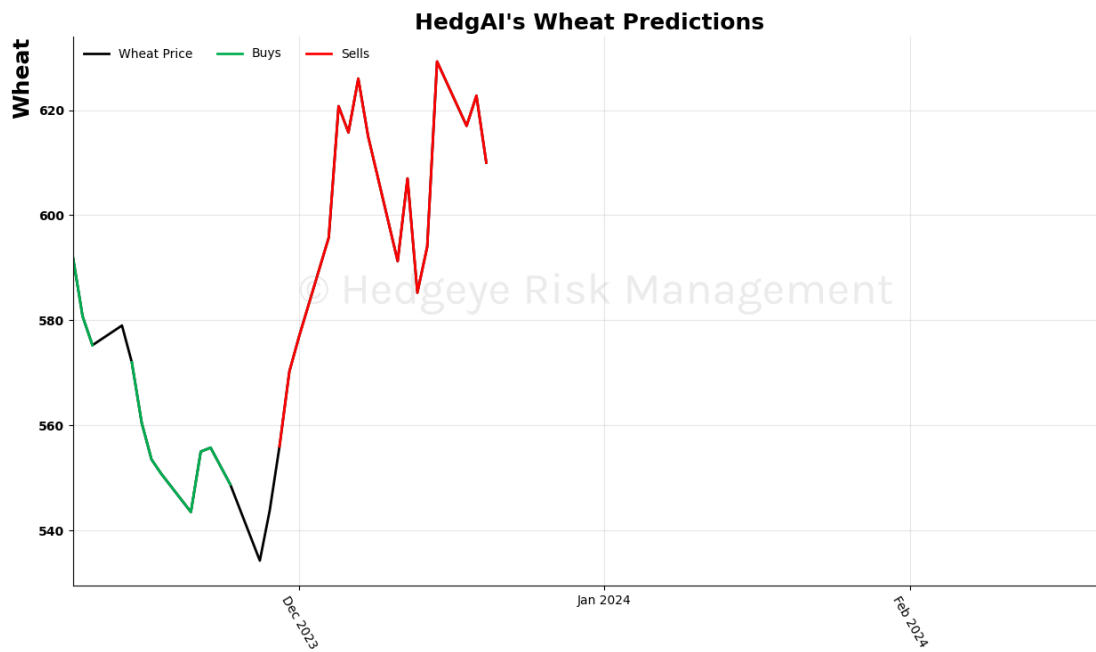


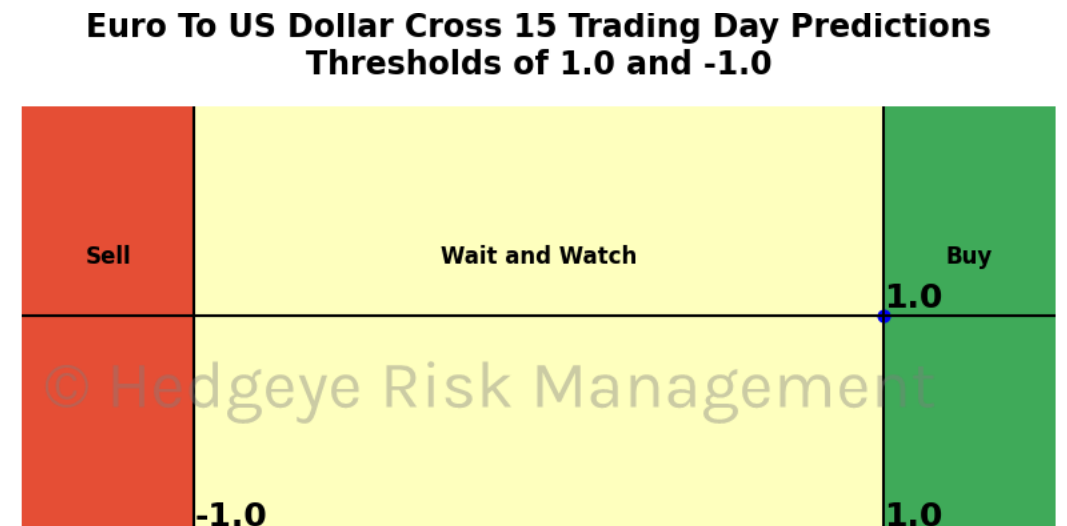
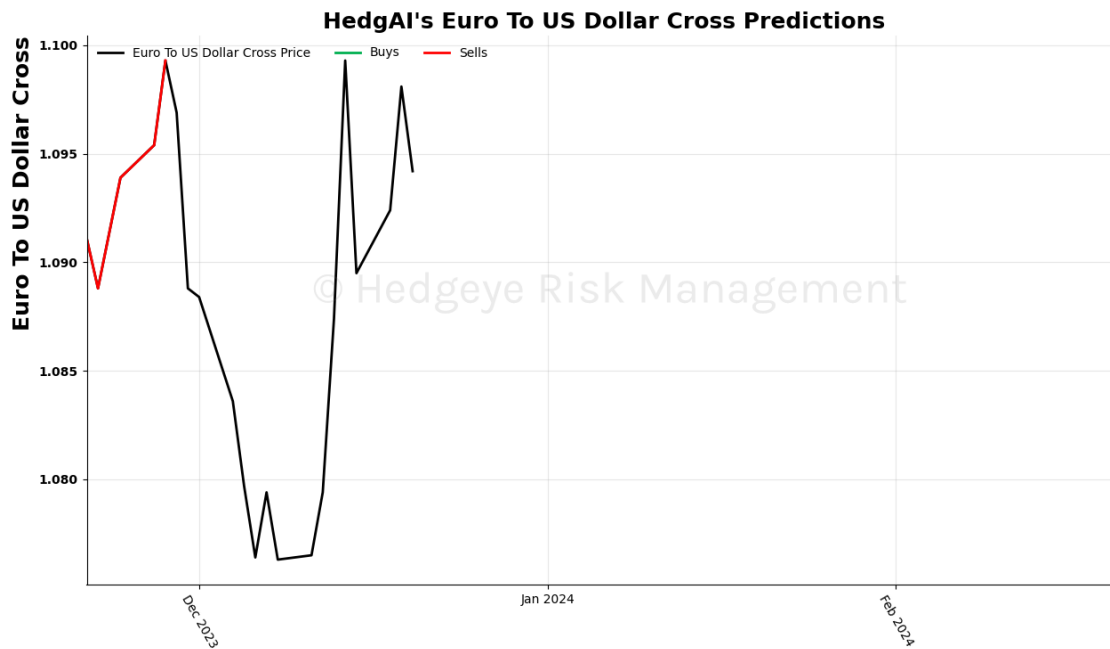
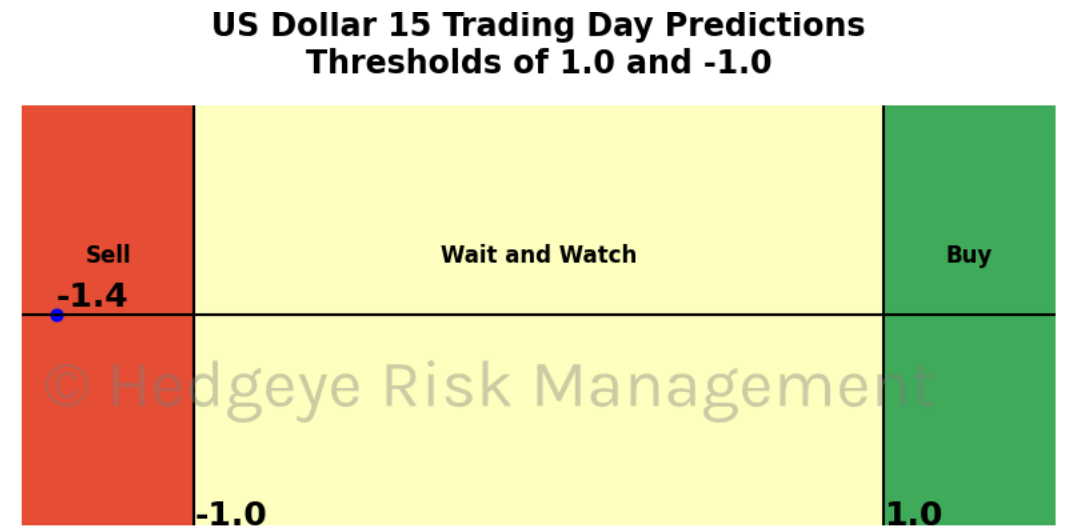
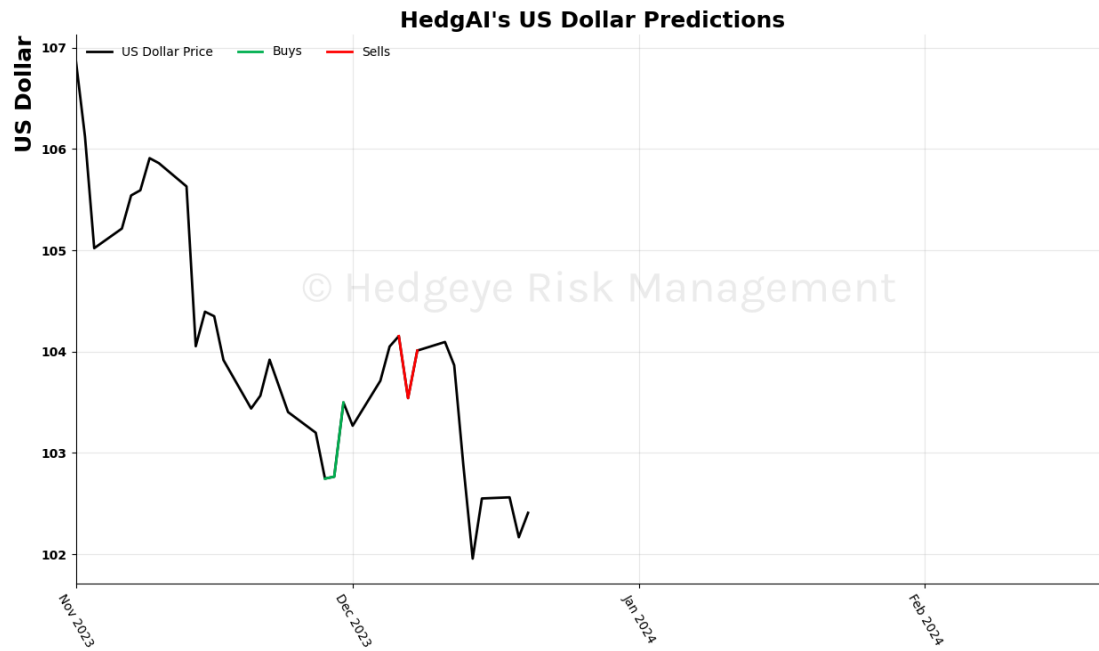




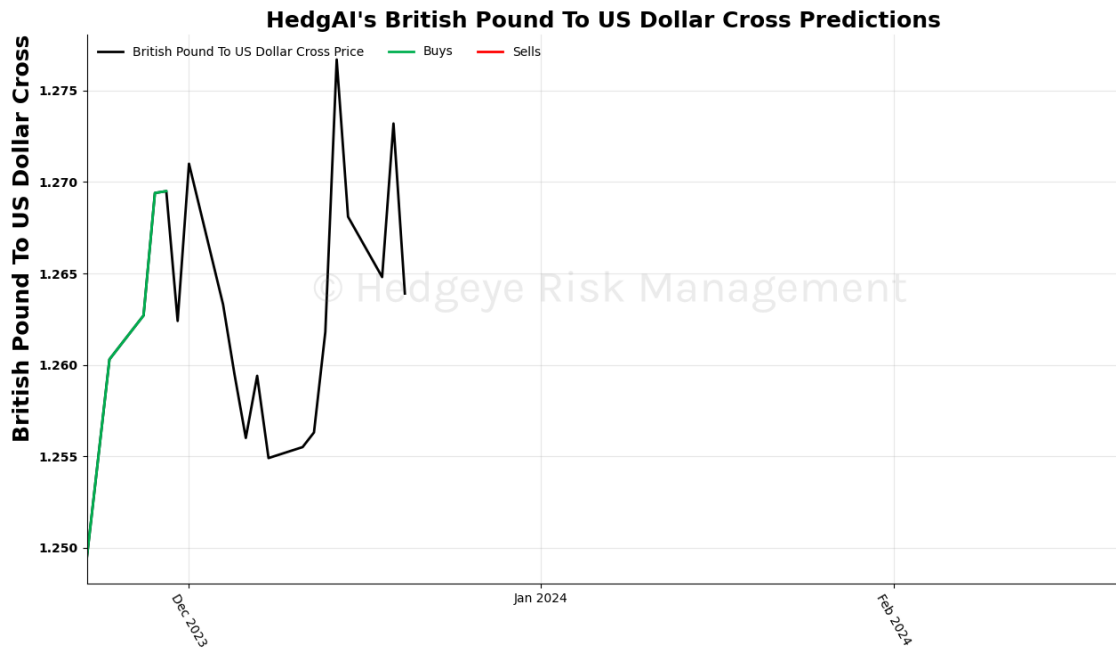




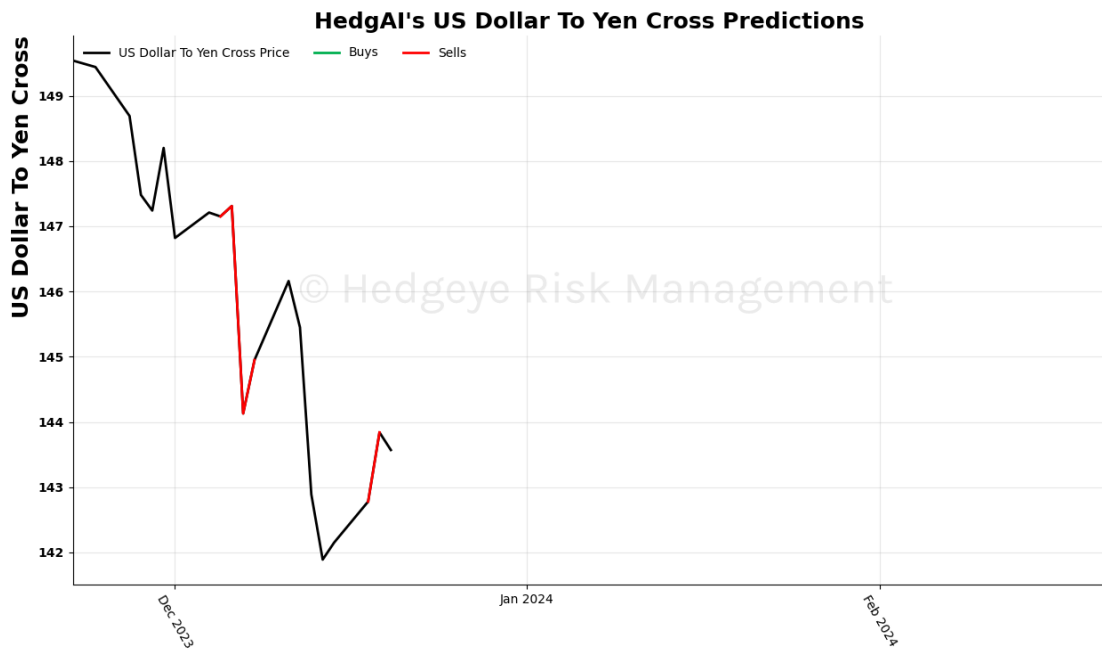




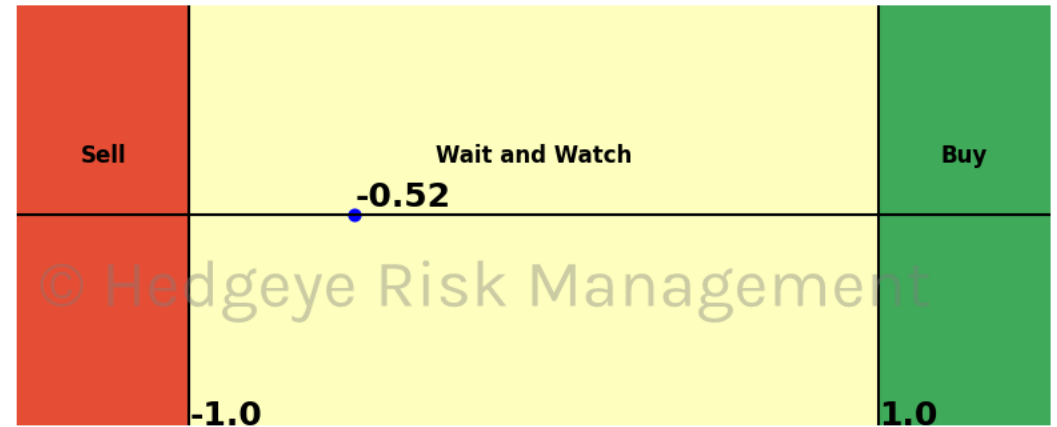


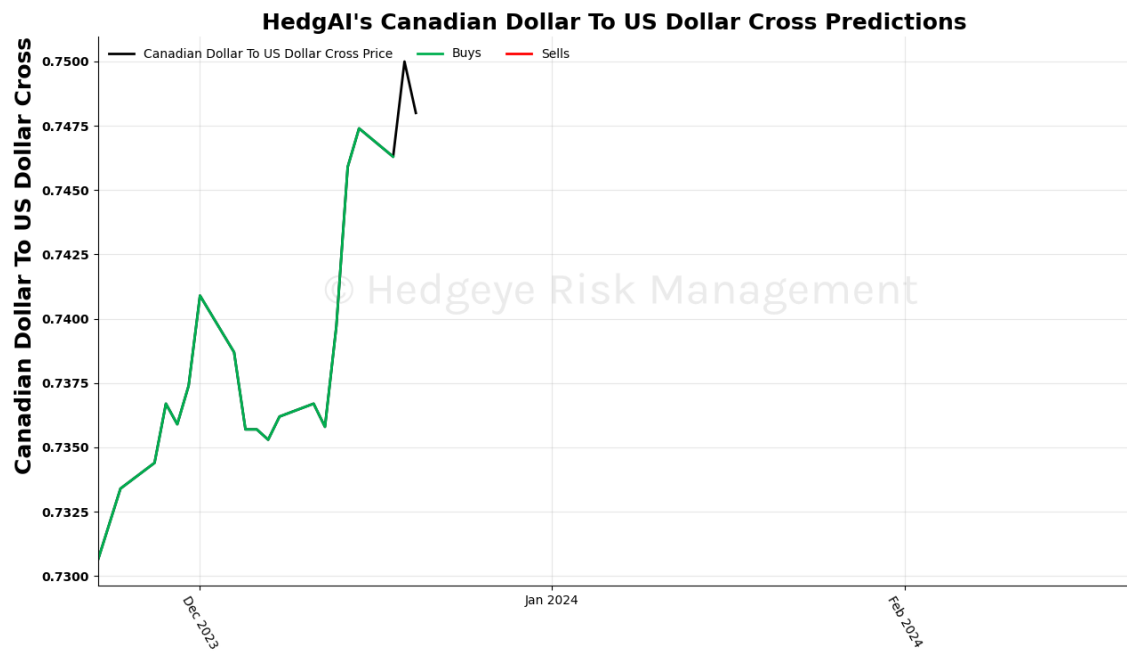


### British Pound To US Dollar Cross 15 Trading Day Predictions Thresholds of 0.8 and -0.8

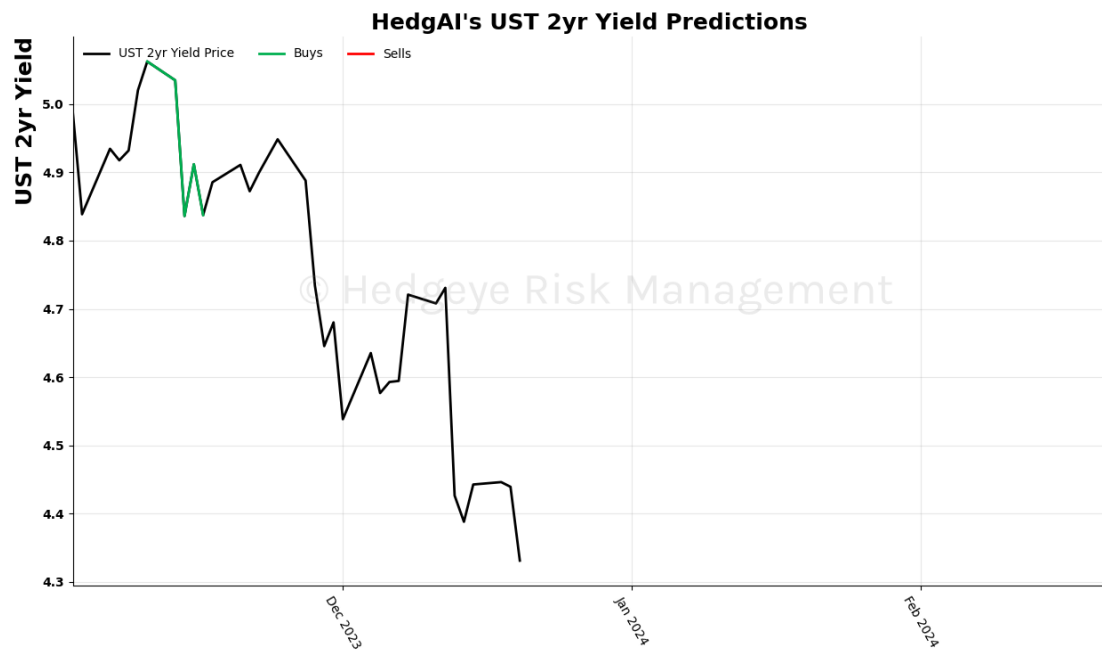


### US Dollar To Yen Cross 15 Trading Day Predictions Thresholds of 1.0 and -1.0

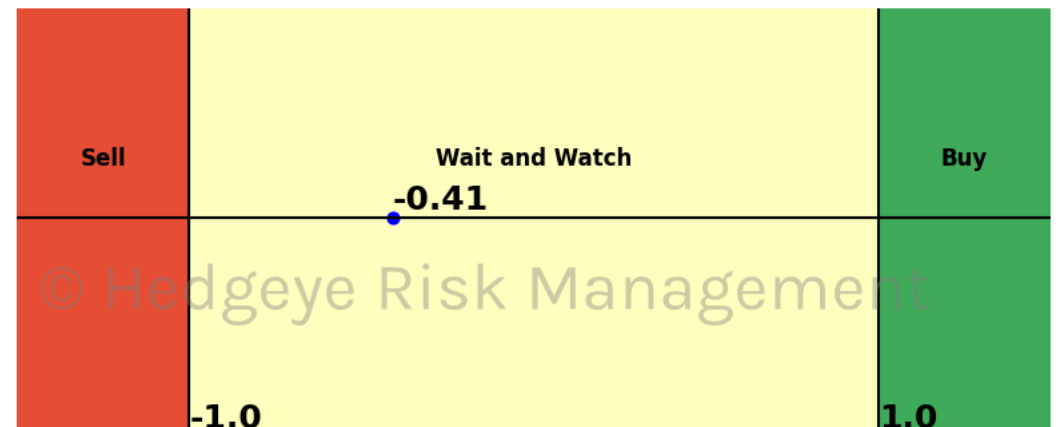


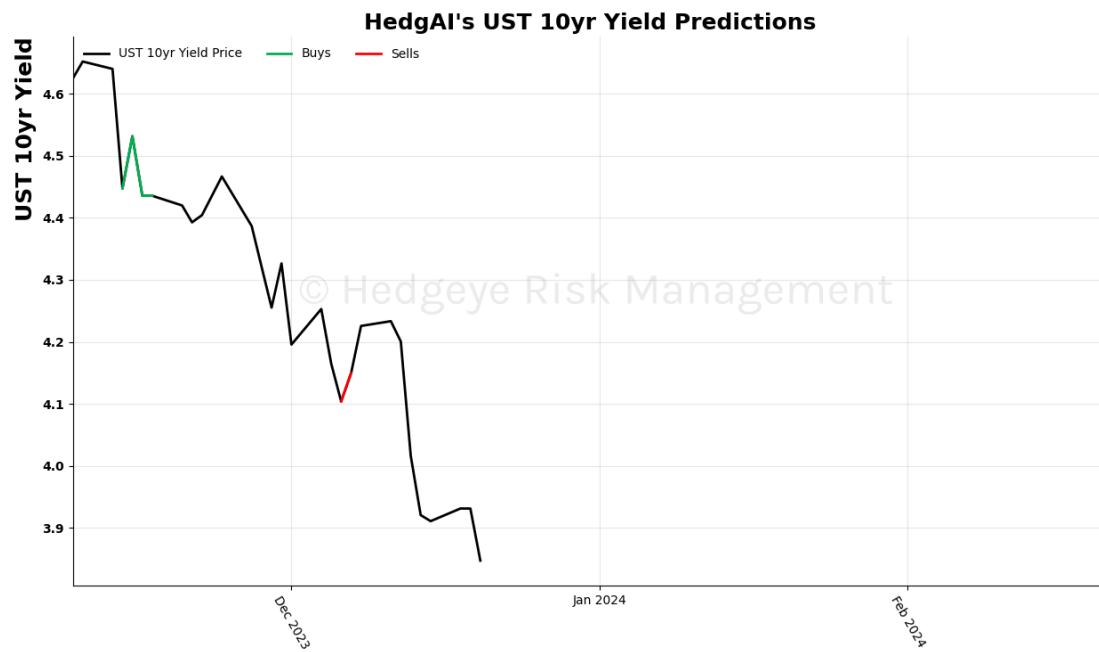


### Canadian Dollar To US Dollar Cross 15 Trading Day Predictions Thresholds of 0.6 and -0.6

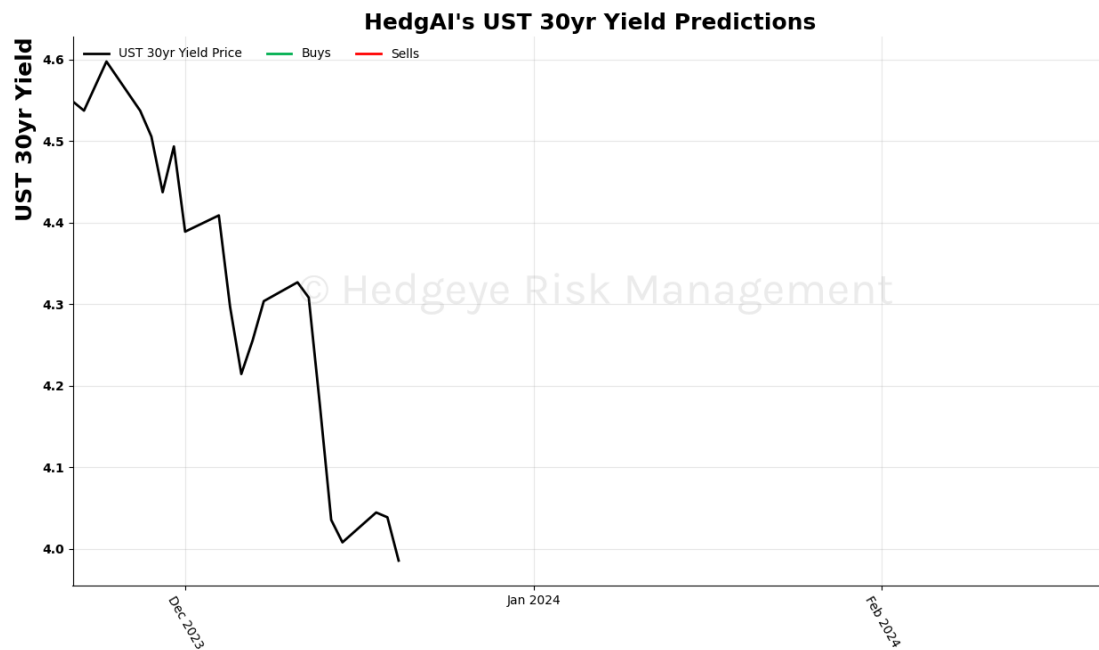


### UST 2yr Yield 15 Trading Day Predictions Thresholds of 1.0 and -1.0



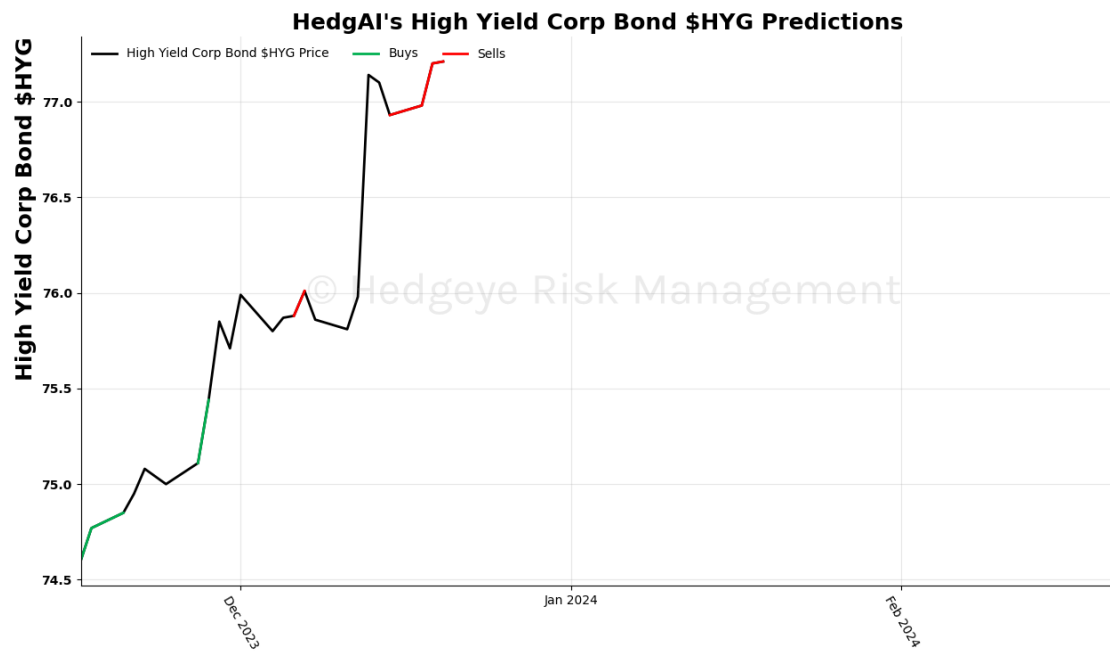


### UST 10yr Yield 15 Trading Day Predictions Thresholds of 1.0 and -1.0



### UST 30yr Yield 15 Trading Day Predictions Thresholds of 1.0 and -1.0





### High Yield Corp Bond \$HYG 15 Trading Day Predictions Thresholds of 1.0 and -1.0



## HedgAI Signals - Description/Tutorial/Disclaimer

### HedgAI Signals – Product Description

HedgAI Signals are simple at their core. The Signals are generated by our proprietary “HedgAI” artificial intelligence (AI) trained algorithms—applying non-linear, squared error methods—to identify relationships between past market data and desired predictive outcomes. Each HedgAI algorithm (the “Algo” or “Algos”) is trained using one data set and validated and operated on a separate data set.

We have back tested each Algo against years of historical market data and have been pleased with the results. We look forward to applying #timestamps to future iterations. Please keep an eye out for that.

Current signals (Long, Short, and Wait and Watch) are a directional call generated by the Algos, as of the date of publication. “Wait and Watch” means the Algo for that asset does not have a directional call as of the date of publication. Signals are updated daily based on the Algos’ daily predictions.

Signaling data for each asset is the result of a unique Algo designed specifically for that asset, and trained using third-party historical market data. Each market day, the Algos ingest market data and update their signal to either a Long, Sell or Wait and Watch. Based on proprietary calculations against historical market data, each Algo then predicts 15 trading days into the future. The resulting published Z Score is a trailing twelve-month (TTM) Z Score of the Algo’s predictions.

Each asset has a unique threshold that marks the point where signals are opened and closed.

The Algo opens a Long signal if the TTM Z Score goes above the published threshold. The Algo closes a Long signal when the TTM Z Score dips back below the same published threshold.

The algorithm opens a Short signal if the TTM Z Score goes below the additive inverse of the published threshold (i.e. if a threshold is 1.0, a Short signal is opened when the TTM Z Score hits -1.0). The Short signal is closed when the TTM Z Score goes back above the same additive inverse of the published threshold.

Wait and Watch is an output generated by the Algo when the TTM Z Score is neither above or below the published threshold or its additive inverse. During Wait and Watch periods, the Algo assumes no signal (Long or Short) in the asset.

## How HedgAI Works

When HedgAI opens a Long or Short signal, on a given day, the Algo notes the available closing price for that same day based on third-party market data available to Hedgeye. The Algo assumes the signal remains open until the TTM Z Score dictates the signal should be closed (above the threshold for a Long signal or below the additive inverse of the threshold for a Short signal). The Algo records the closing price based on third-party market data available to Hedgeye on the day that the Algo selects to close the signal based on the TTM Z Score moving below the threshold for an open Long signal, and above the additive inverse for a Short signal.

Using an example where the asset's threshold (and additive inverse) is 1.0 and -1.0 [Day, TTM Z Score, Closing Price]:

[8/14/2023, 0.9, 11], [8/15/2023, 1.2, 10], [8/16/2023, 1.3, 12], [8/17/2023, 1.4, 10], [8/18/2023, 0.8, 9], [8/21/2023, -1.1, 10], [8/22/2023, -2.0, 11], [8/23/2023, -0.9, 7], [8/24/2023, 0.2, 9].

Using the threshold stated (remember this is different for each Algo) the signals would be as follows: The Algo would open a long on 8/15/2023 at \$10 and close the long on 8/18/2023 at \$9, losing 10% on its signal. The Algo would also open a short on 8/21/2023 at \$10 and close the short on 8/23/2023 at \$7, a 30% positive price movement on the signal.

## Understanding Product Graphics

Every day you will be given a list of 'Longs Added', 'Shorts Added', 'Longs Closed', 'Shorts Closed'

### Current Signals

Each market day, the Current Signals will include any directional signals the Algo has "opened" and not yet closed, the Algo's predicted Threshold and the Z Score calculation against yesterday's closing price, one day prior to yesterday's close, 2 days prior to yesterday's close and 3 days prior to yesterday's close.

### Summary Signals

Each market day, the Summary Signals will include the Current Signals plus "wait and watch" signals.

### Trading Day Threshold Slider Graph

Each market day, the slider chart will illustrate the Algo's current TTM Z Score in relation to the threshold for all signals.

### Algo Signal Graph

Each market day, the Algo Signal Graph will update with the prior day's signal generated by the model. The graph starts from the signal generated the day prior to the first day of publication for each asset. Signals are not actual trades.

#### Asset Non-Stock Asset Classes Models

The Algos designed to make predictions relating to exchange-traded securities are trained and tracked based on the third-party pricing available to those securities. The Algos designed to make predictions relating to assets classes which are not exchange-traded securities, have been trained and tracked based on the following Bloomberg® Tickers. The following chart also provides one example ETF that purports to correlate to the price movement of the corresponding asset.

Hedgeye does not have any influence or control over the management of the example Related ETFs listed and is not responsible for their performance. The Algos' performance in relation to tracking price movement of an asset may vary significantly from any ETF's performance for several reasons outside of Hedgeye's control. Hedgeye does not recommend the investment in any ETF relative to another.

<u>Asset</u>	<u>Bloomberg Ticker</u>	<u>Example Related ETF</u>
US 30yr yield	USGG30YR Index	TLT*
US 10yr yield	USGG10YR Index	UST*
US 2yr yield	USGG2YR Index	SHY*
Russell	RTY Index	IWM
S&P 500	SPX Index	SPY
Nasdaq	NDX Index	QQQ
Shanghai	SHCOMP Index	FXI
Japan	NKY Index	EWJ
Germany	DAX Index	EWG
Dollar	DXY Curncy	UUP
EUR/USD	EURUSD Curncy	FXE
USD/YEN	USDJPY Curncy	FXJ*
GBP/USD	GBPUSD Curncy	FXB
CAD/USD	CADUSD Curncy	FXC
Brent Oil	CO1 Comdty	BNO
Copper	HG1 Comdty	CPER
Silver	SI1 Comdty	SLV
Sugar	SB1 Comdty	CANE
Steel	STEEL Index	SLX
Uranium	URA US Equity	URA
Lithium	LIT US Equity	LIT
Wheat	W 1 Comdty	WEAT
Palladium	XPD Curncy	PALL
Platinum	XPT Curncy	PPLT
Crude Oil	CL1 Comdty	USO
Corn	C 1 Comdty	CORN
Natural Gas	NG1 Comdty	UNG
Soybean	S 1 Comdty	SOYB
Gold	XAU Curncy	GLD
Cotton	CT1 Comdty	None
Coffee	KC1 Comdty	None
Bitcoin	XBTUSD Curncy	BITO

## **Disclaimer**

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