

# PromiseLand



## PromiseLand's Market Commentaries

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## 1 Introduction

Option positions in the options markets on indices and equities can be used to infer market movements and sentiments. The counterparties of an options trade are the investor, and the dealer. Investors who establish positions in options are generally likely to have a view on the underlying investment. In contrast, dealers generally do not adopt a view on the underlying investment. Dealers must therefore protect, or employ hedges against their options positions, and this entails buying and selling of the underlying investment. Such large hedging activity by dealers is able to influence the prices and volatility of the underlying. By knowing the expected activity taken by the dealers, we are able to infer price movement direction, to gather volatility expectations, and to assess market sentiment.

Notes and commentaries will be periodically provided.

The appendix contain explanatory notes on how to utilize price levels.



## 2 Concise Summary

### 2.1 S&P500

The S&P500 closed with a return of 0.1%. Current closing price levels are at record highs, in light of generally positive quarterly corporate earnings results. Negative news weighed in on the performance of the index. The spread of the Delta COVID-19 variant worldwide has forced renewed lockdowns across parts of Asia and Australia. This triggered fresh concerns on the trajectory of global growth. The latest outbreak has reached nearly half of China's 32 provinces in just two weeks, prompting China last Tuesday to cancel flights in and out of Beijing and to place the city of Nanjing under lockdown. Also, the 7-day average of new US COVID-19 infections rose to a 6-month high Saturday of 108,936.

The Key Gamma Strike of 4400 will continue to be significant level, whereby there is significant long gamma exposure, which should provide some support for the S&P500 to remain buoyant. The level whereby investors are targeting a top upside potential remains at 4450.

However, there is an upward shift in the Put Wall from 4100 to 4200. As this level moves higher, it indicates a bearish sentiment whereby more market participants seek greater downside protection.

**Expected trading range: 4400 - 4450.**

### 2.2 NASDAQ100

The NASDAQ100 closed with a return of -0.53%, with the negative performance being contributed by a slump of -1.6% in the NASDAQ Biotech Index. It is also evident from the increase of magnitude of option put gamma that it is likely that investors are seeking greater downside protection now across various strike prices. While market drawdowns are unfavourable, investors have assessed that there is a reasonable chance of it happening. The level whereby investors are targeting a top upside potential remains at 15200.

**Expected trading range: 15000 - 15100.**

### 2.3 STOXX50

The STOXX50 closed with a return of 0.26%. Inflation jitters and rising COVID-19 cases were insufficient to dampen investor sentiment this time. Travel and leisure stocks contributed to the gains. Also, almost all sectors entered positive territory. An upward shift of the Call Wall from 4200 to 4250 is positive as it signals that investors now have a more positive expectation and sentiment of the upper limit of the index.

**Expected trading range: 4150 - 4250.**

### 2.4 DAX

The DAX closed with a return of 0.16%. Gains in the Retail, Insurance and Utilities sectors contributed most to the positive performance.

The DAX remain extremely close to the Zero Gamma Level. If the price level approaches this level, we expect that prices should rebound, given that the Zero Gamma Level has always been a reliable support level.

**Expected trading range: 15750 - 15800.**



## 2.5 Gold

Gold traded mostly flatly as volatility has started to stabilize from the recent tumble. We are still seeing increases in investor put activity, which indicates that short term bearishness is here to stay. However, should Gold rebound upwards, the existence of such options should cause prices to ‘ramp’ up to around 1750.

**Expected trading range: 1700 - 1740.**

## 2.6 Silver

Silver experienced a similar fate to Gold. With prices below the Lower Hedge Wall, we expect that downside volatility should be curtailed, barring any negative fundamental news. We are still seeing increases in investor put activity, which indicates that short term bearishness is here to stay.

**Expected trading range: 23.9 - 25.**

## 2.7 Crude Oil

Both Brent and WTI posted moderate gains on speculation the global economic rebound will continue despite the spread of the Delta COVID-19 variant. A rally in the S&P500 and Dow bolstered optimism in the economic outlook. However, gains were capped due a rally in the dollar index and hence the strength of the USD on Tuesday to a 2-week high.

Such gains are likely to be speculative, given fresh news on the outlook of demand and supply of energy. Fresh negative news indicate that globally, airline capacity stands at 64% of pre-pandemic levels and may worsen after Bloomberg News reported that the European Union is considering reintroducing travel restrictions for visitors from the US as recent US COVID-19 infection rates have surged again.

**Expected trading range: 65 - 75.**



### 3 Market Price Levels

Table 1: Key Price Levels for Market Indices

	S&P500	NASDAQ100	STOXX50	DAX
Current Price	4436.75	15053.58	4187.82	15770.71
Previous Price	4432.35	15133.11	4177.15	15745.41
Return	0.000992	-0.005270	0.002550	0.001610
Call Wall	4450	15200	4250	16100
Key Delta Strike	4000	14500	4100	15600
Key Gamma Strike	4400	15100	4100	15600
Max Gamma Vanna	4410	15040	4150	15800
Max Gamma	4480	15360	4300	16350
Max Vanna	4400	15030	4150	15800
Put Wall	4200	14000	3900	15000
Zero Gamma Vanna	3629.92	13167.30	3291.50	13853.69
Zero Gamma	4391.37	15010.25	4121.27	15749.67

Table 2: Key Dates for Market Indices

	S&P500	NASDAQ100	STOXX50	DAX
Largest Gamma Strike Date	2021-09-17	2021-08-20	2021-12-17	2021-08-20
Largest Gamma Strike	0.225	0.248	0.275	0.378
Largest Delta Strike Date	2021-09-17	2021-09-17	2021-12-17	2021-12-17
Largest Delta Strike	0.269	0.291	0.426	0.534
Next Expiration Date	2021-08-11	2021-08-11	2021-08-20	2021-08-20
Next Expiration Gamma	0.0853	0.1010	0.2310	0.3780
Next Expiration Delta	0.00773	0.01970	0.04250	0.12800



Table 3: Key Price Levels for Single-name Indices

	Gold Futures	Silver Futures	ICE Crude Oil Brent	Crude Oil WTI
Current Price	1729.550	23.289	70.630	68.290
Previous Price	1728.56	23.32	69.04	66.48
Return	0.000573	-0.001220	0.022800	0.026900
Hedge Wall (Lower)	1715.0	23.9	65.0	64.5
Hedge Wall (Upper)	1952.50	25.30	84.75	77.50
Key Delta Strike (Call)	1850.00	18.25	75.00	50.00
Key Delta Strike (Put)	1700	24	59	110
Key Gamma Strike	1750	24	70	70
Min Gamma Vanna	1717.500	24.825	71.500	70.000
Min Gamma	1787.50	24.85	74.25	71.00
Min Vanna	1702.5	23.9	53.0	59.5
Zero Delta	1737.30	24.12	61.44	60.12

Table 4: Key Dates for Single-name Indices

	Gold Futures	Silver Futures	ICE Crude Oil Brent	Crude Oil WTI
Largest Gamma Strike Date	2021-08-26	2021-08-26	2021-10-26	2021-08-17
Largest Gamma Strike	0.308	0.433	0.356	0.411
Largest Delta Strike Date (Put)	2021-08-26	2021-08-26	2021-11-24	2021-08-13
Largest Delta Strike (Put)	1.510000	0.994000	-0.001160	-0.000645
Largest Delta Strike Date (Call)	2022-05-26	2022-06-27	2021-10-26	2021-11-16
Largest Delta Strike (Call)	-1.110	-0.227	0.643	0.588
Next Expiration Date	2021-08-13	2021-08-13	2021-08-25	2021-08-13
Next Expiration Gamma	0.0514	0.0555	0.2990	0.0138
Next Expiration Delta	0.265000	0.129000	0.018000	-0.000645

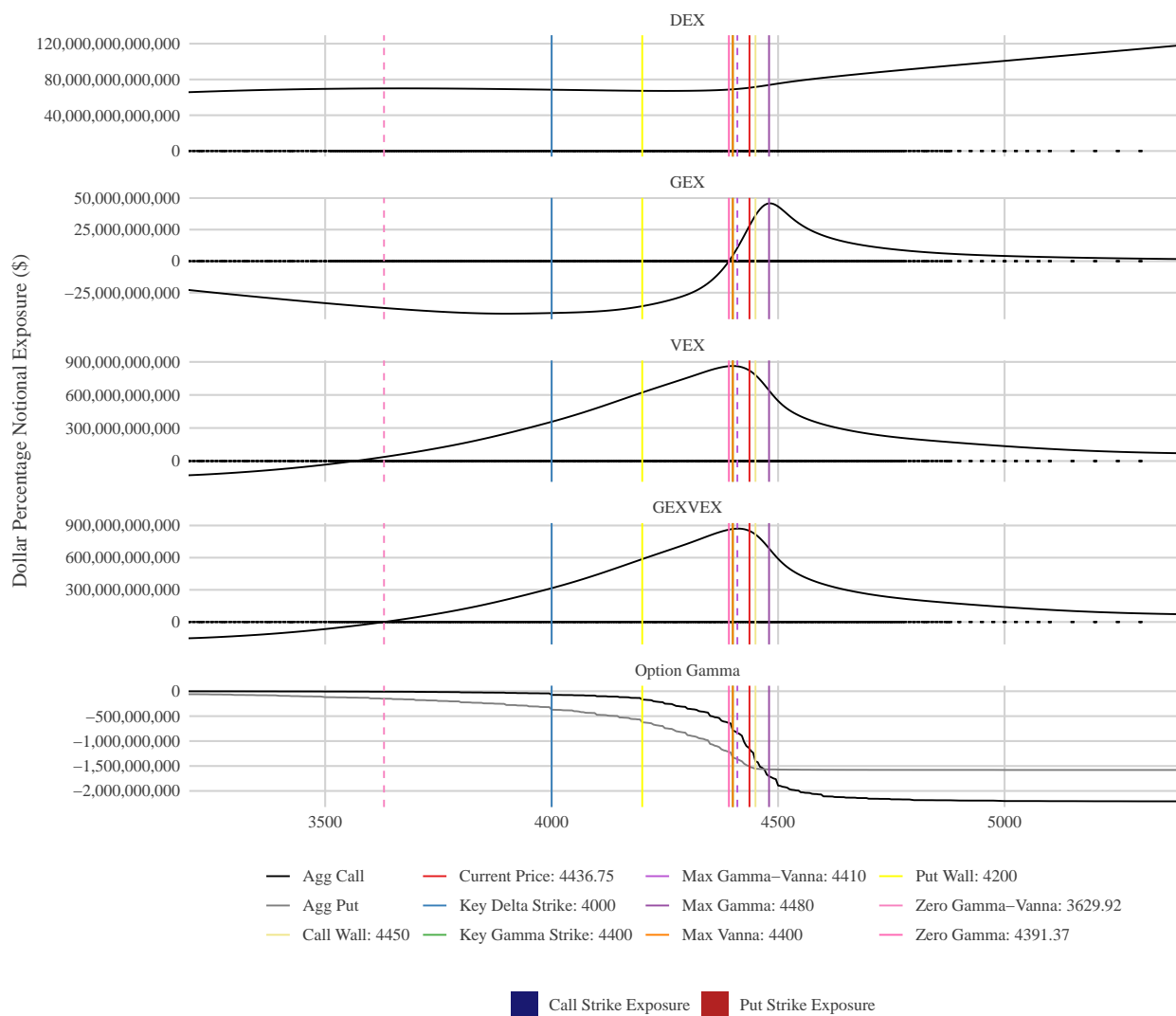


## 4 Market Indices

### 4.1 S&P500

#### Dollar Notional Exposure for SPX

Largest Gamma Strike: 2021-09-17 0.225  
 Largest Delta Strike: 2021-09-17 0.269  
 Next Expiration: 2021-08-11  
 Next Expiration Gamma: 0.0853  
 Next Expiration Delta: 0.00773  
 Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
 Data as of 2021-08-11



The S&P500 closed with a return of 0.1%. Current closing price levels are at record highs, in light of generally positive quarterly corporate earnings results. Negative news weighed in on the performance of the index. The spread of the Delta COVID-19 variant worldwide has forced renewed lockdowns across parts of Asia and Australia. This triggered fresh concerns on the trajectory of global growth. The latest outbreak has reached nearly half of China's 32 provinces in just two weeks, prompting China last Tuesday to cancel flights in and out of Beijing and to place the city of Nanjing under lockdown. Also, the 7-day average of new US COVID-19 infections rose to a 6-month high Saturday of 108,936.

The Key Gamma Strike of 4400 will continue to be significant level, whereby there is significant long gamma





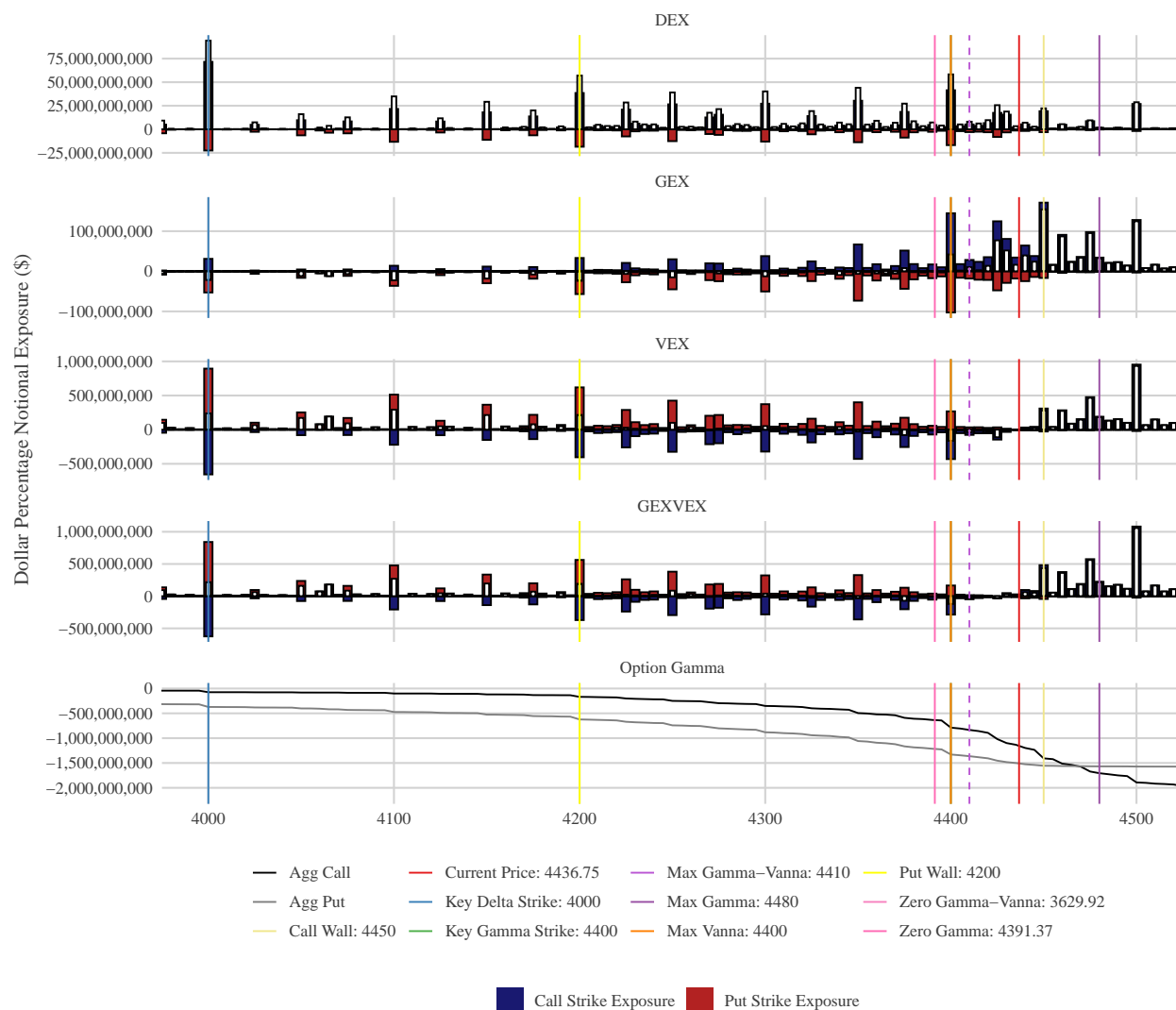
exposure, which should provide some support for the S&P500 to remain buoyant. The level whereby investors are targeting a top upside potential remains at 4450.

However, there is an upward shift in the Put Wall from 4100 to 4200. As this level moves higher, it indicates a bearish sentiment whereby more market participants seek greater downside protection.

**Expected trading range: 4400 - 4450.**

### Strike Notional Exposure for SPX

Largest Gamma Strike: 2021-09-17 0.225  
Largest Delta Strike: 2021-09-17 0.269  
Next Expiration: 2021-08-11  
Next Expiration Gamma: 0.0853  
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Data as of 2021-08-11

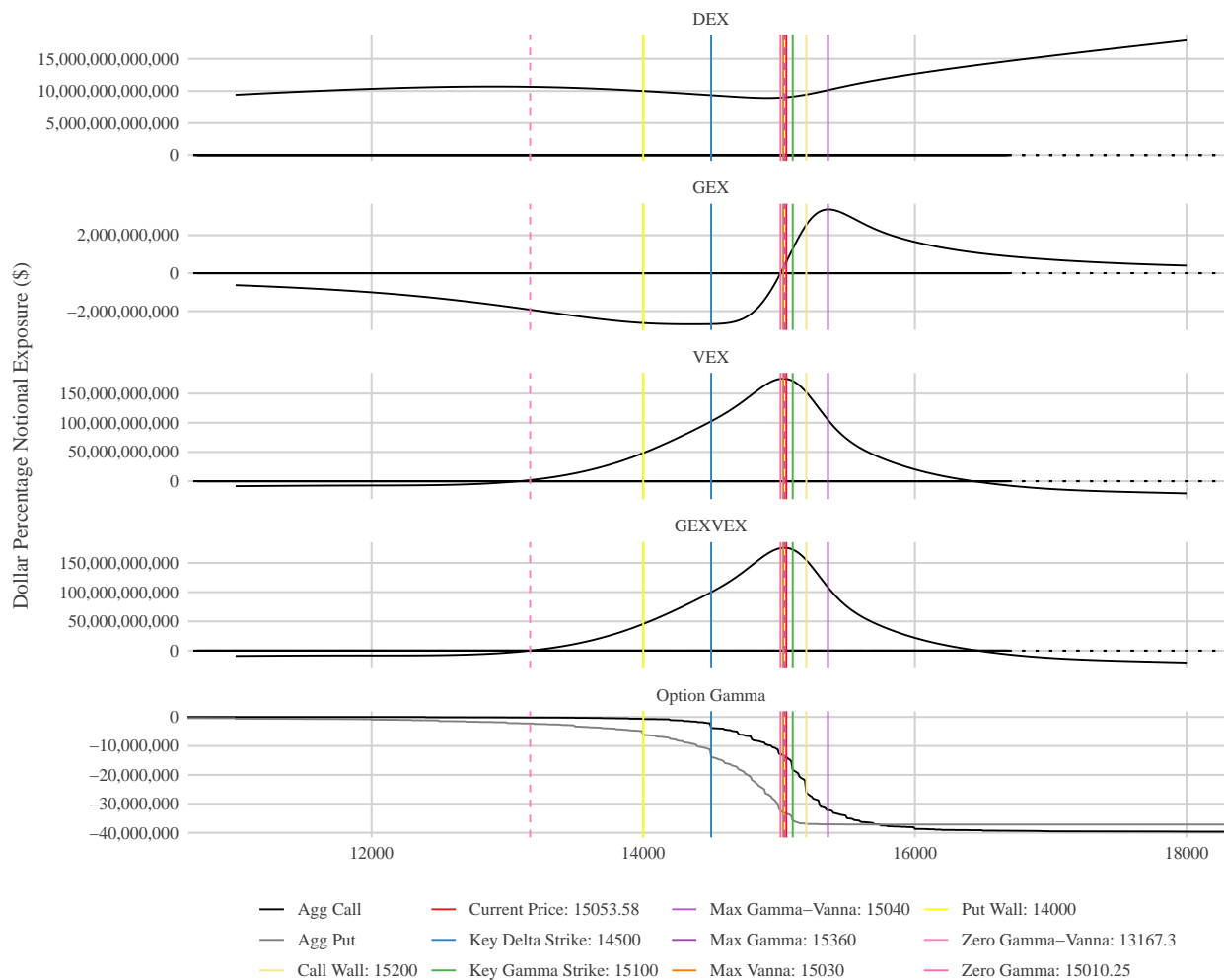




## 4.2 NASDAQ100

### Dollar Notional Exposure for NASDAQ 100 E-Mini

Largest Gamma Strike: 2021-08-20 0.248  
 Largest Delta Strike: 2021-09-17 0.291  
 Next Expiration: 2021-08-11  
 Next Expiration Gamma: 0.101  
 Next Expiration Delta: 0.0197  
 Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
 Data as of 2021-08-11



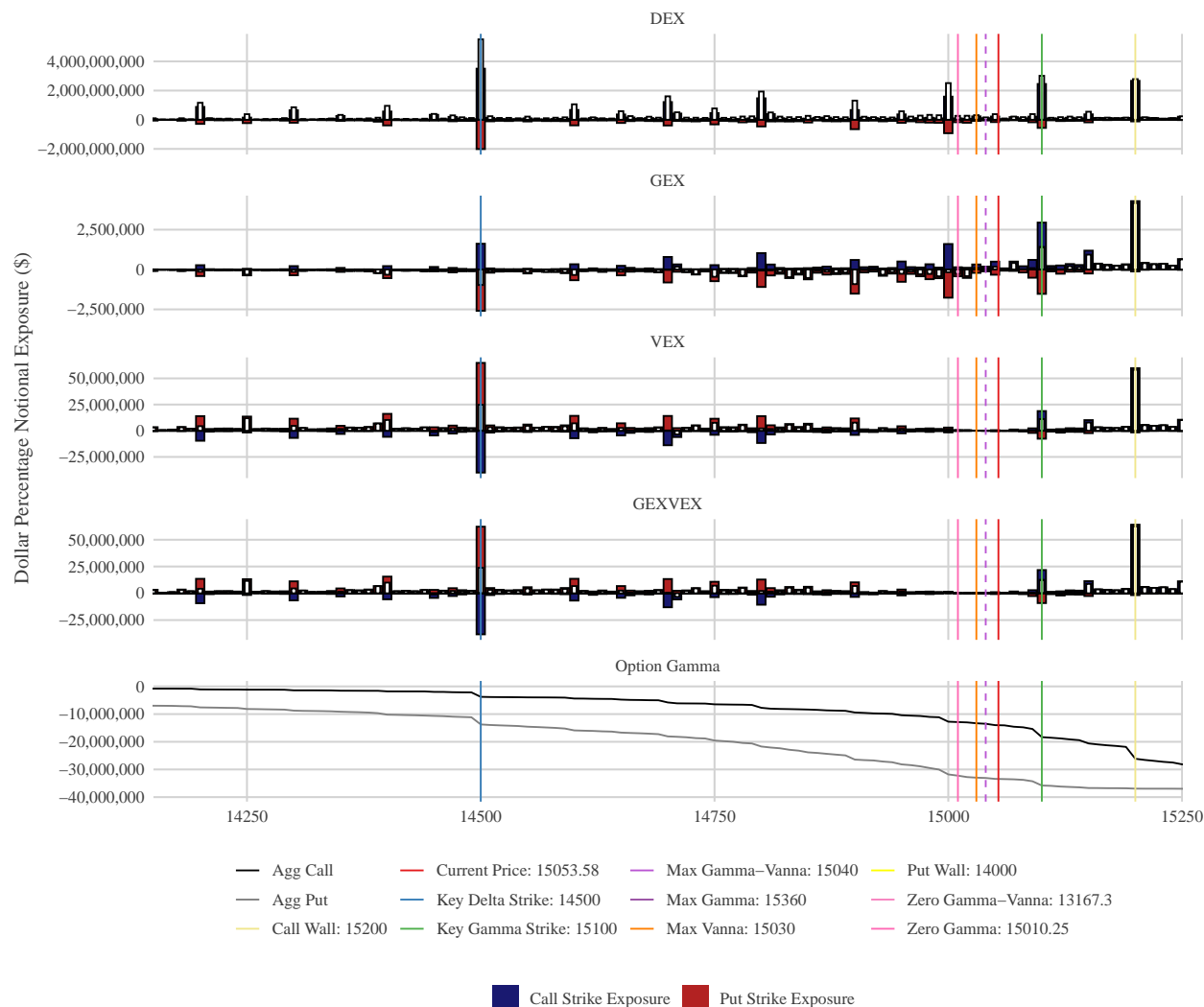
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**Expected trading range: 15000 - 15100.**



## Strike Notional Exposure for NASDAQ 100 E-Mini

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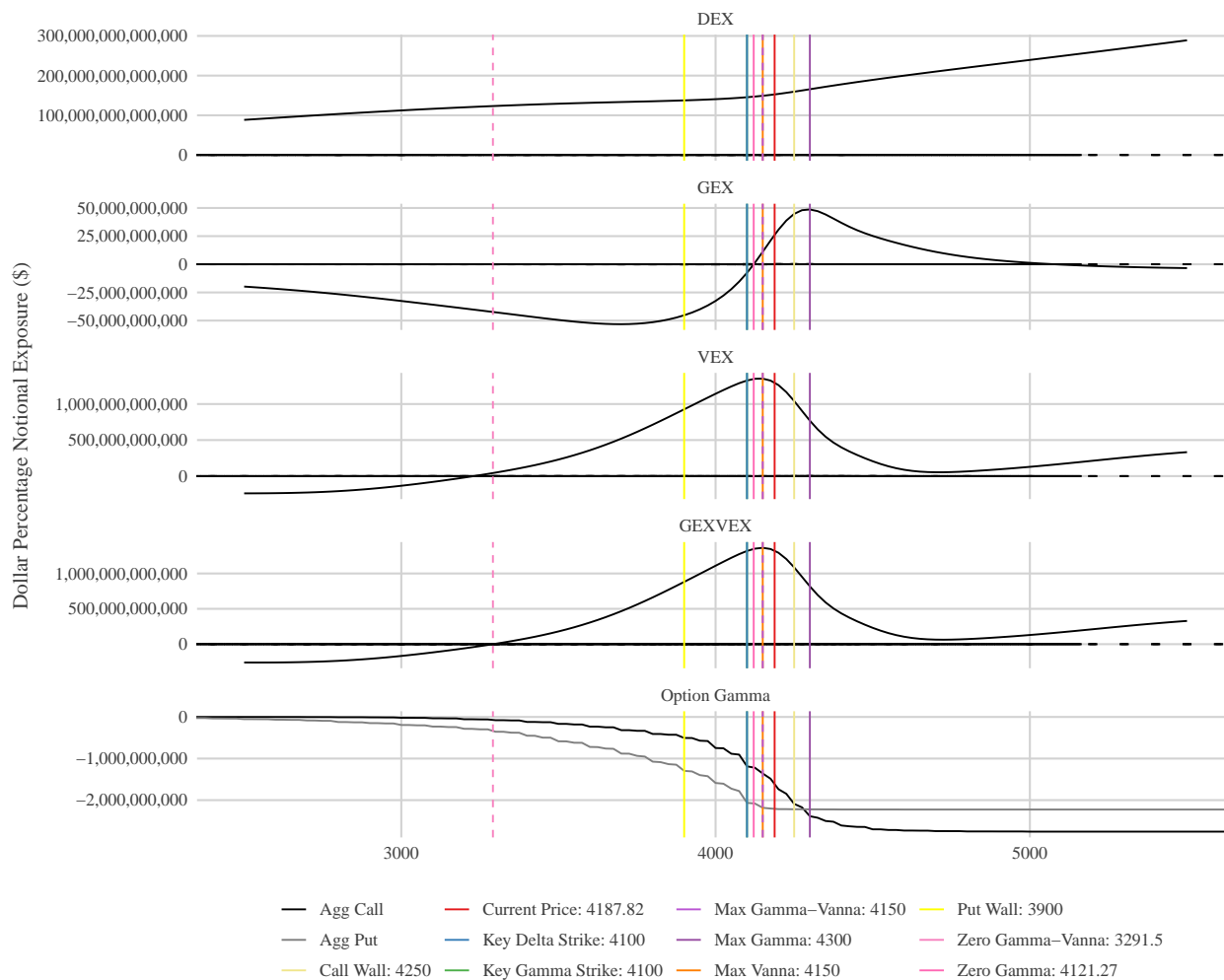




### 4.3 STOXX50

#### Dollar Notional Exposure for Euro Stoxx 50 Futures

Largest Gamma Strike: 2021-12-17 0.275  
 Largest Delta Strike: 2021-12-17 0.426  
 Next Expiration: 2021-08-20  
 Next Expiration Gamma: 0.231  
 Next Expiration Delta: 0.0425  
 Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
 Data as of 2021-08-11



Call Strike Exposure Put Strike Exposure

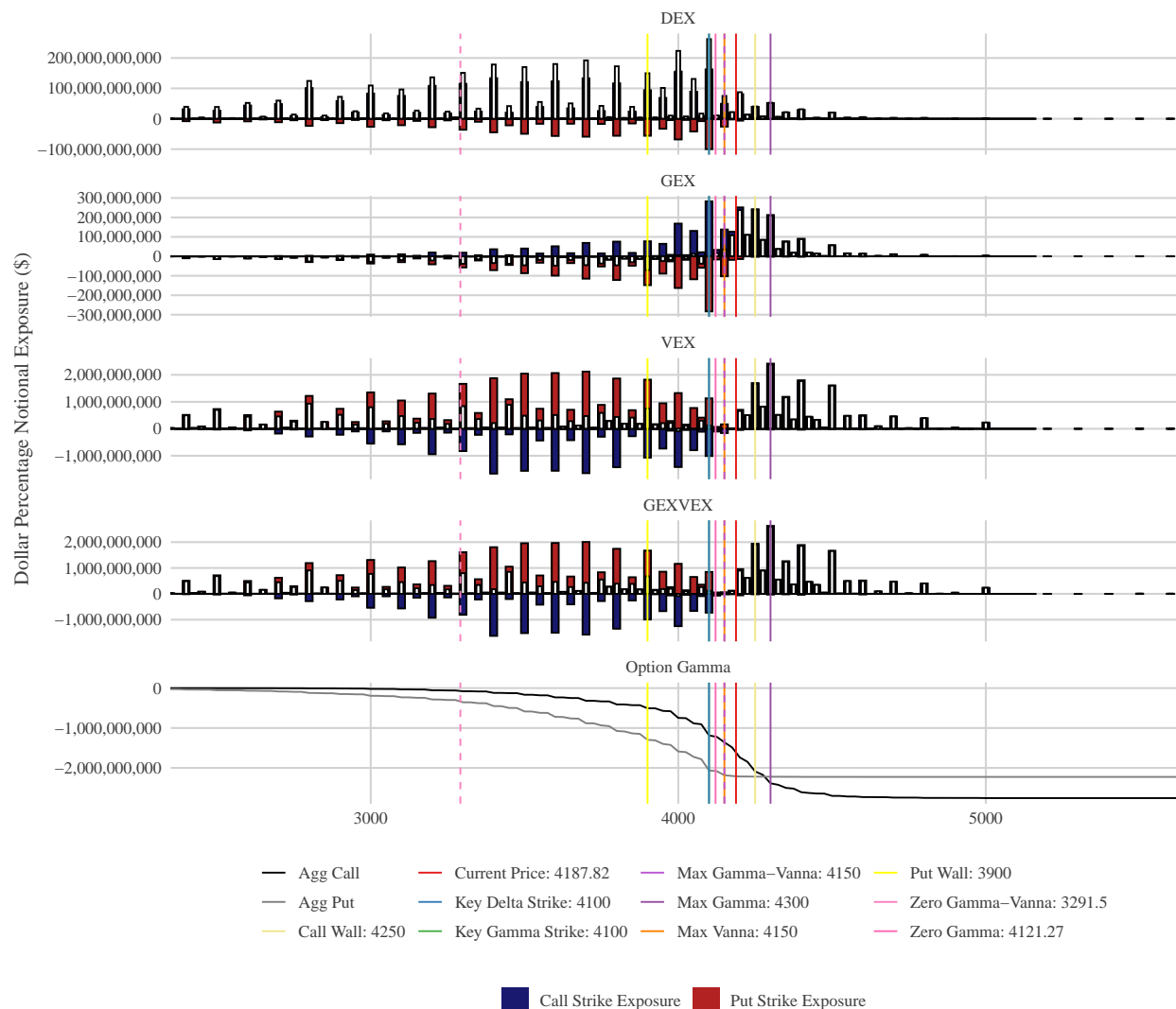
The STOXX50 closed with a return of 0.26%. Inflation jitters and rising COVID-19 cases were insufficient to dampen investor sentiment this time. Travel and leisure stocks contributed to the gains. Also, almost all sectors entered positive territory. An upward shift of the Call Wall from 4200 to 4250 is positive as it signals that investors now have a more positive expectation and sentiment of the upper limit of the index.

**Expected trading range: 4150 - 4250.**



## Strike Notional Exposure for Euro Stoxx 50 Futures

Largest Gamma Strike: 2021-12-17 0.275  
Largest Delta Strike: 2021-12-17 0.426  
Next Expiration: 2021-08-20  
Next Expiration Gamma: 0.231  
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Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
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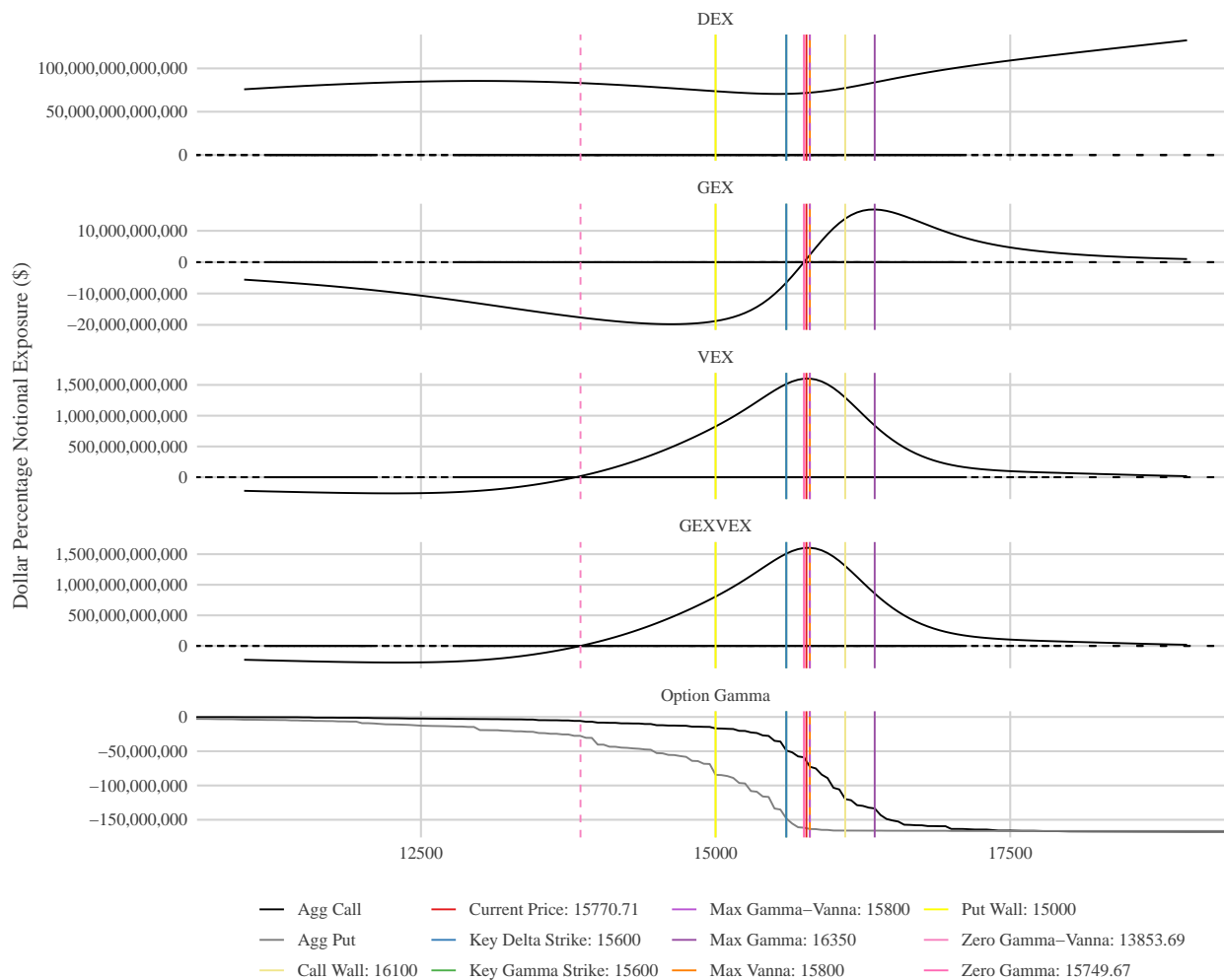




## 4.4 DAX

### Dollar Notional Exposure for DAX Futures

Largest Gamma Strike: 2021-08-20 0.378  
 Largest Delta Strike: 2021-12-17 0.534  
 Next Expiration: 2021-08-20  
 Next Expiration Gamma: 0.378  
 Next Expiration Delta: 0.128  
 Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
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Call Strike Exposure Put Strike Exposure

The DAX closed with a return of 0.16%. Gains in the Retail, Insurance and Utilities sectors contributed most to the positive performance.

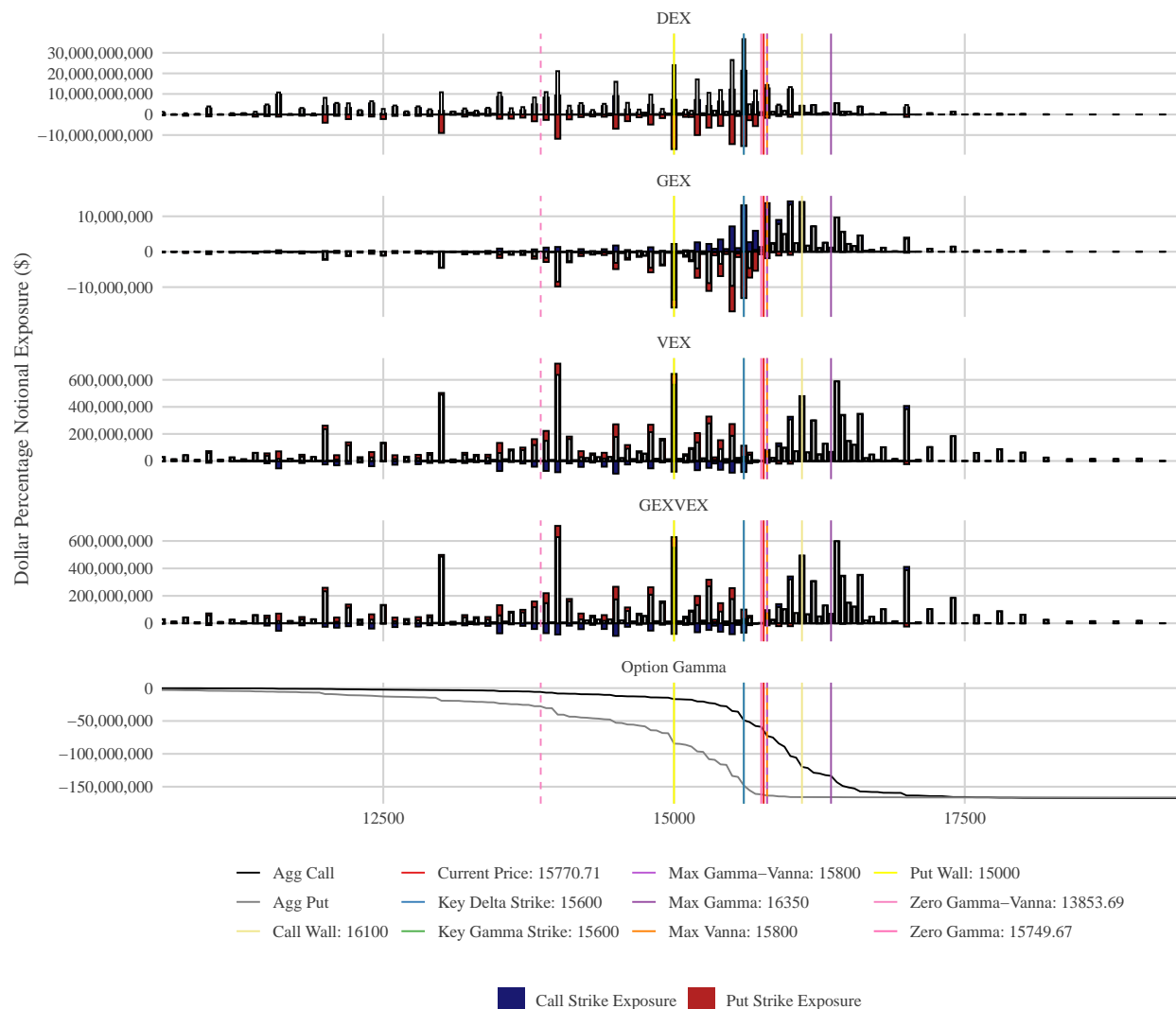
The DAX remain extremely close to the Zero Gamma Level. If the price level approaches this level, we expect that prices should rebound, given that the Zero Gamma Level has always been a reliable support level.

**Expected trading range: 15750 - 15800.**



## Strike Notional Exposure for DAX Futures

Largest Gamma Strike: 2021-08-20 0.378  
Largest Delta Strike: 2021-12-17 0.534  
Next Expiration: 2021-08-20  
Next Expiration Gamma: 0.378  
Next Expiration Delta: 0.128  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
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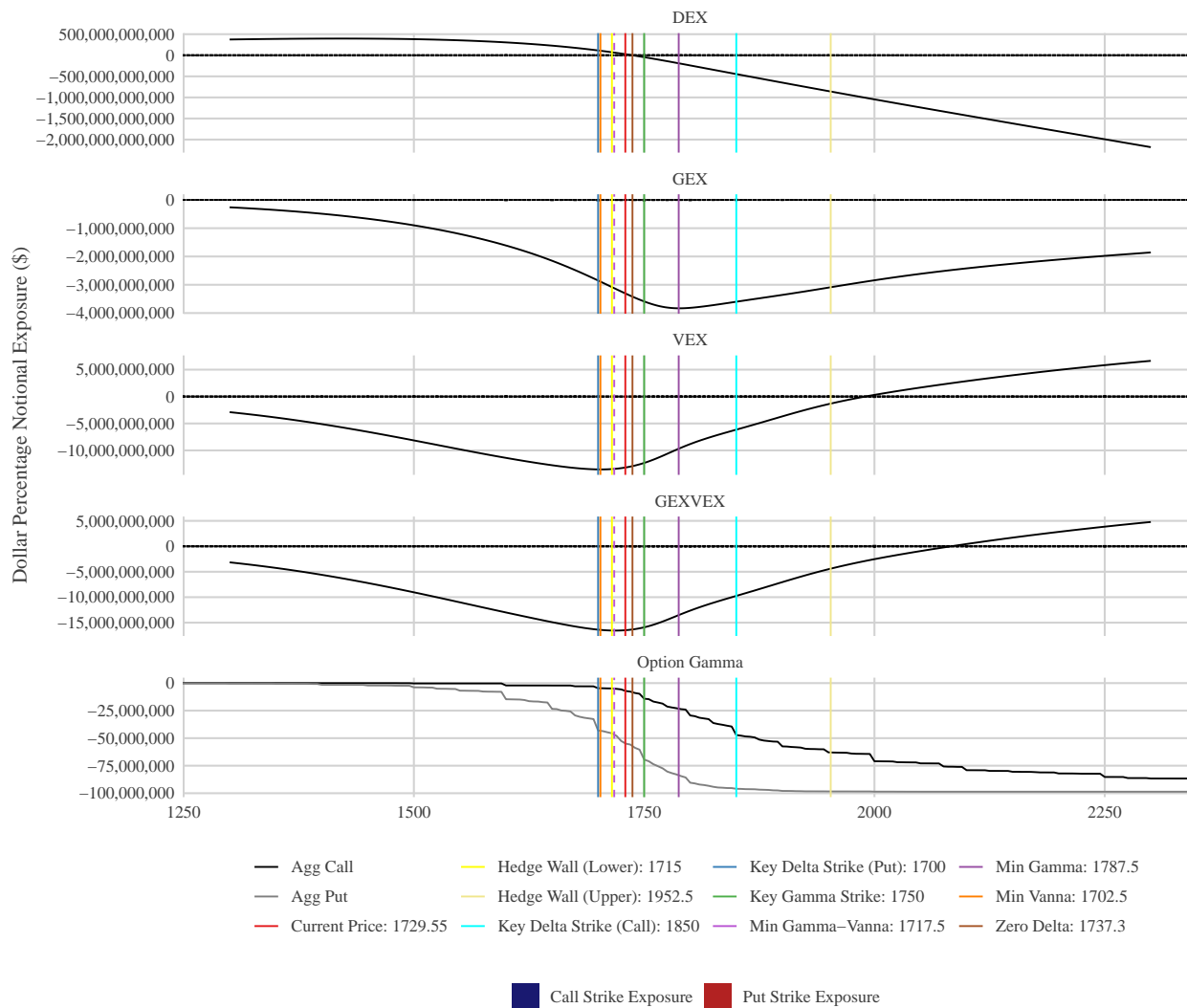


## 5 Commodities

### 5.1 Gold

#### Dollar Notional Exposure for Gold Futures

Largest Gamma Strike: 2021-08-26 0.308  
Largest Delta Strike (Put): 2021-08-26 1.51  
Largest Delta Strike (Call): 2022-05-26 -1.11  
Next Expiration: 2021-08-13  
Next Expiration Gamma: 0.0514  
Next Expiration Delta: 0.265  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-08-11



Gold traded mostly flatly as volatility has started to stabilize from the recent tumble. We are still seeing increases in investor put activity, which indicates that short term bearishness is here to stay. However, should Gold rebound upwards, the existence of such options should cause prices to 'ramp' up to around 1750.

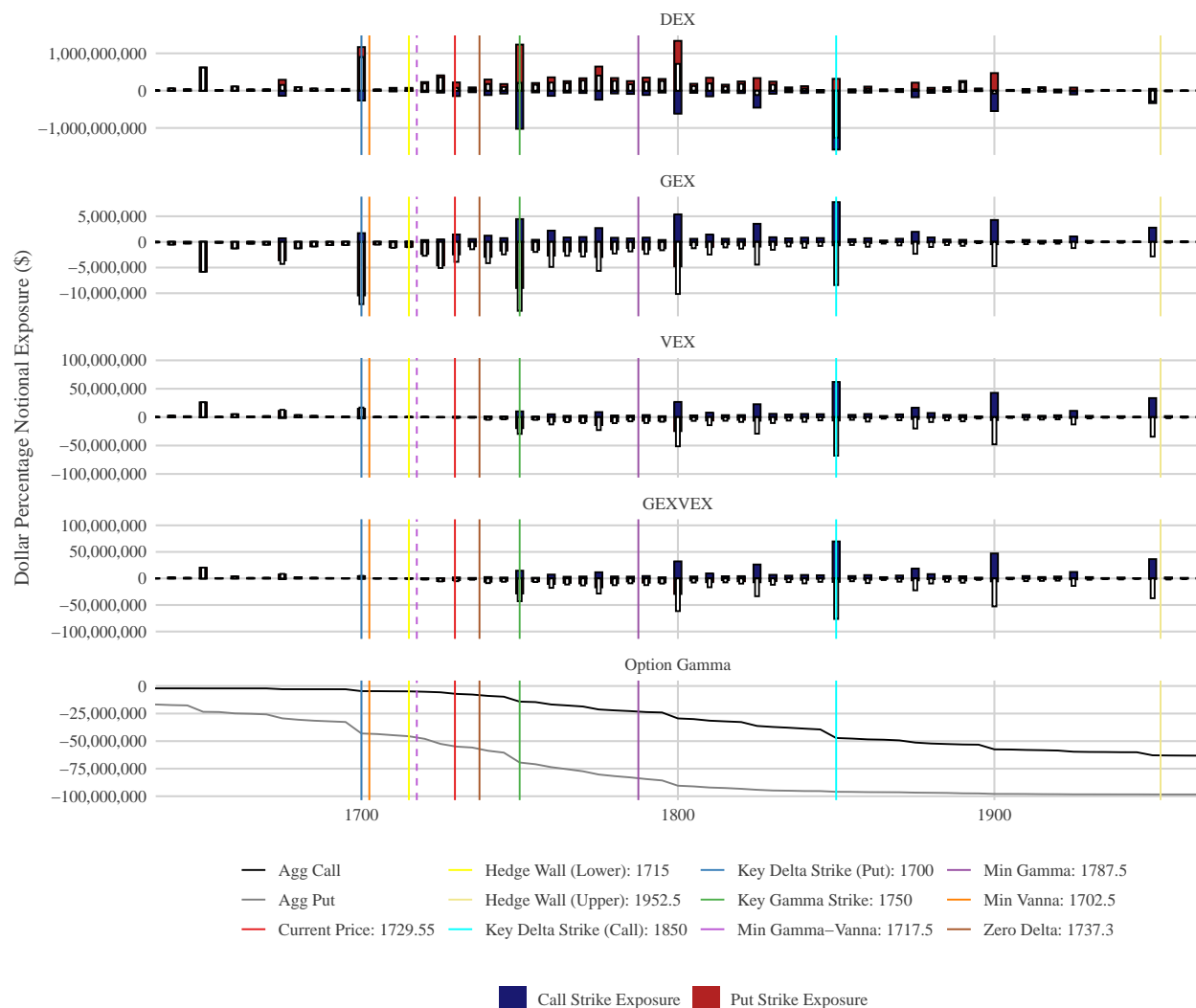
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## Strike Notional Exposure for Gold Futures

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Data as of 2021-08-11

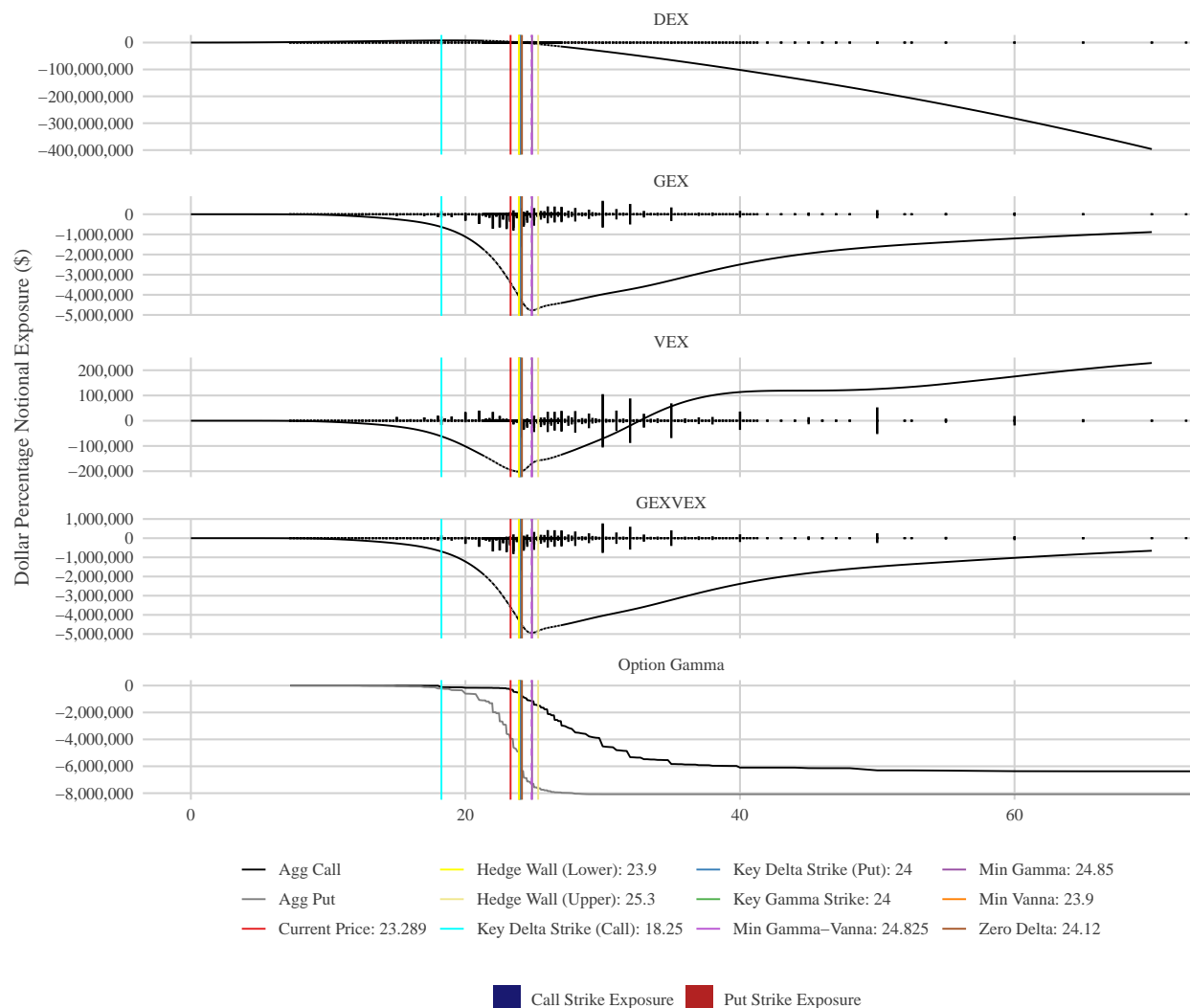




## 5.2 Silver

### Dollar Notional Exposure for Silver Futures

Largest Gamma Strike: 2021-08-26 0.433  
 Largest Delta Strike (Put): 2021-08-26 0.994  
 Largest Delta Strike (Call): 2022-06-27 -0.227  
 Next Expiration: 2021-08-13  
 Next Expiration Gamma: 0.0555  
 Next Expiration Delta: 0.129  
 Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
 Data as of 2021-08-11



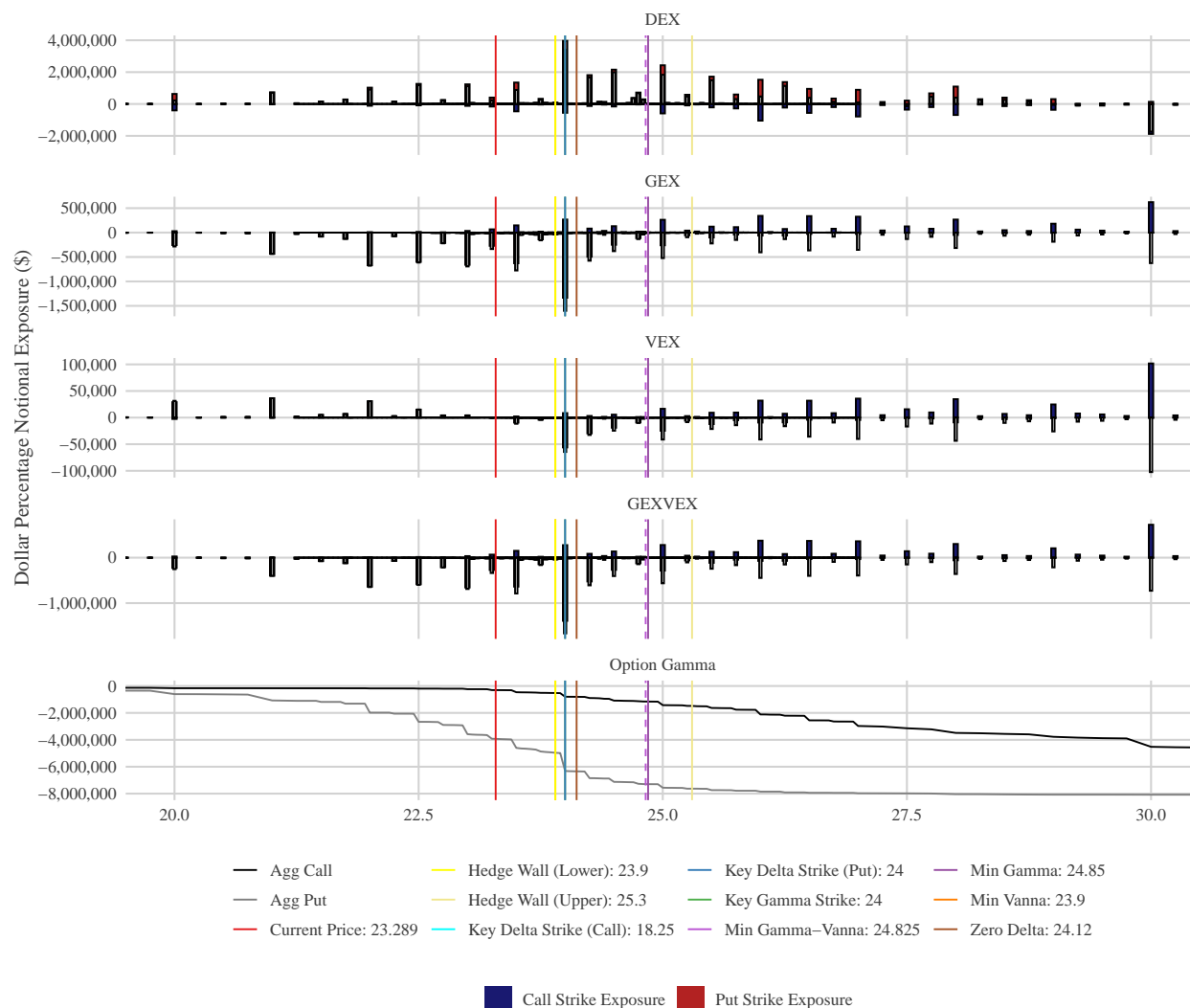
Silver experienced a similar fate to Gold. With prices below the Lower Hedge Wall, we expect that downside volatility should be curtailed, barring any negative fundamental news. We are still seeing increases in investor put activity, which indicates that short term bearishness is here to stay.

**Expected trading range: 23.9 - 25.**



## Strike Notional Exposure for Silver Futures

Largest Gamma Strike: 2021-08-26 0.433  
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Next Expiration Gamma: 0.0555  
Next Expiration Delta: 0.129  
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### 5.3 Crude Oil

Both Brent and WTI posted moderate gains on speculation the global economic rebound will continue despite the spread of the Delta COVID-19 variant. A rally in the S&P500 and Dow bolstered optimism in the economic outlook. However, gains were capped due a rally in the dollar index and hence the strength of the USD on Tuesday to a 2-week high.

Such gains are likely to be speculative, given fresh news on the outlook of demand and supply of energy. Fresh negative news indicate that globally, airline capacity stands at 64% of pre-pandemic levels and may worsen after Bloomberg News reported that the European Union is considering reintroducing travel restrictions for visitors from the US as recent US COVID-19 infection rates have surged again.

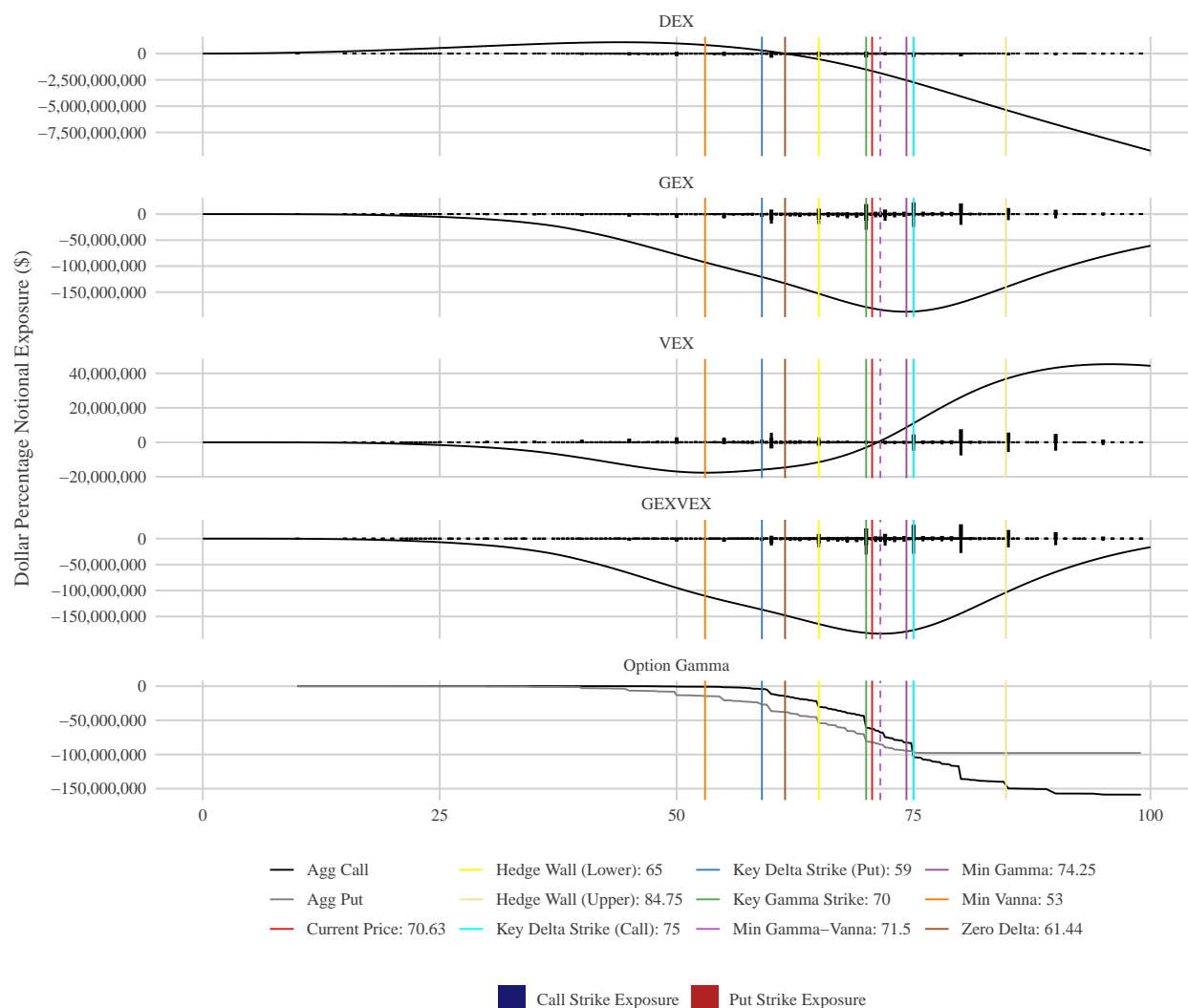
**Expected trading range: 65 - 75.**



### 5.3.1 Brent

#### Dollar Notional Exposure for ICE Crude Oil Brent

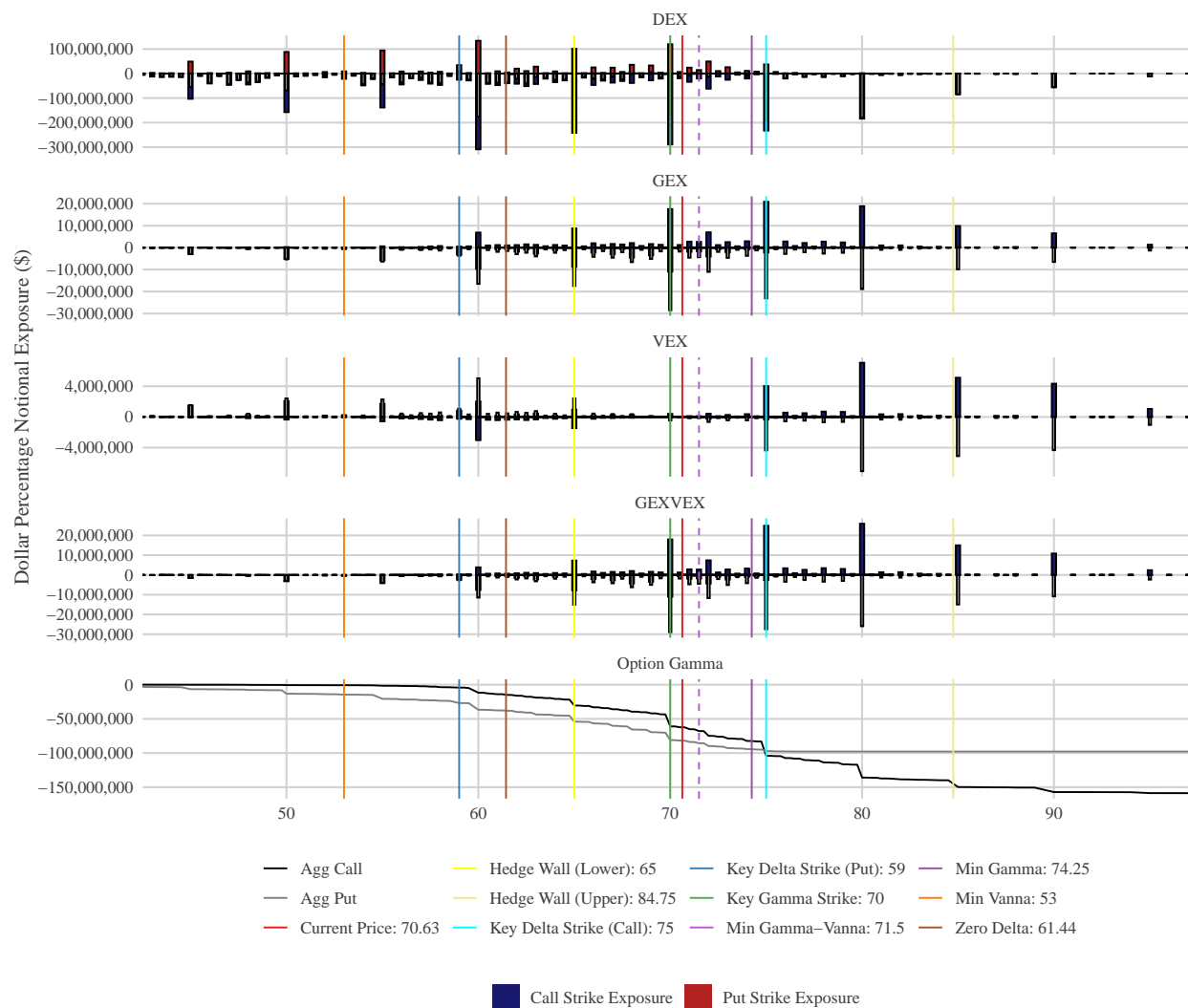
Largest Gamma Strike: 2021-10-26 0.356  
Largest Delta Strike (Put): 2021-11-24 -0.00116  
Largest Delta Strike (Call): 2021-10-26 0.643  
Next Expiration: 2021-08-25  
Next Expiration Gamma: 0.299  
Next Expiration Delta: 0.018  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-08-11





## Strike Notional Exposure for ICE Crude Oil Brent

Largest Gamma Strike: 2021-10-26 0.356  
Largest Delta Strike (Put): 2021-11-24 -0.00116  
Largest Delta Strike (Call): 2021-10-26 0.643  
Next Expiration: 2021-08-25  
Next Expiration Gamma: 0.299  
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Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-08-11

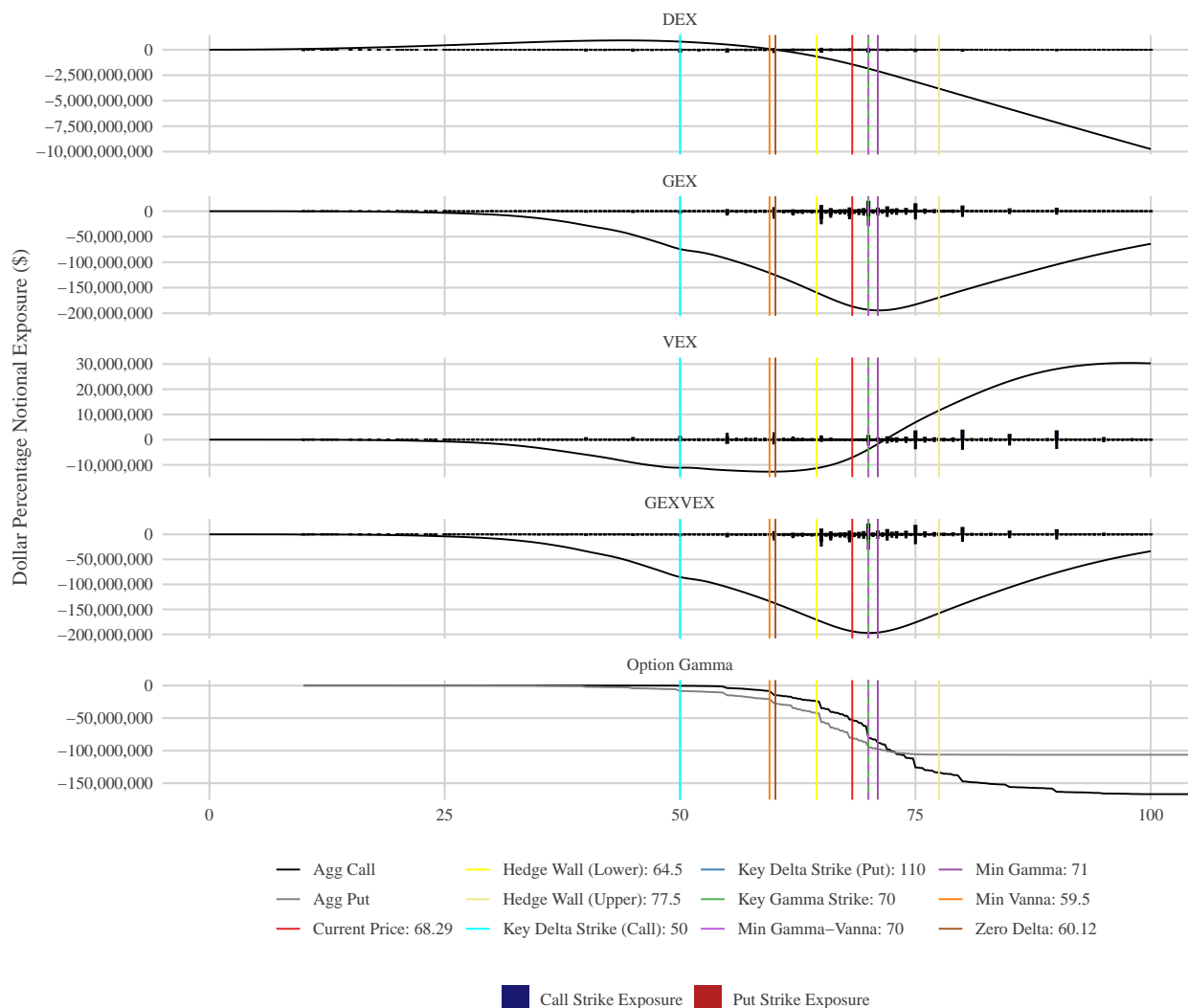




### 5.3.2 West Texas Intermediate (WTI)

#### Dollar Notional Exposure for Crude Oil WTI

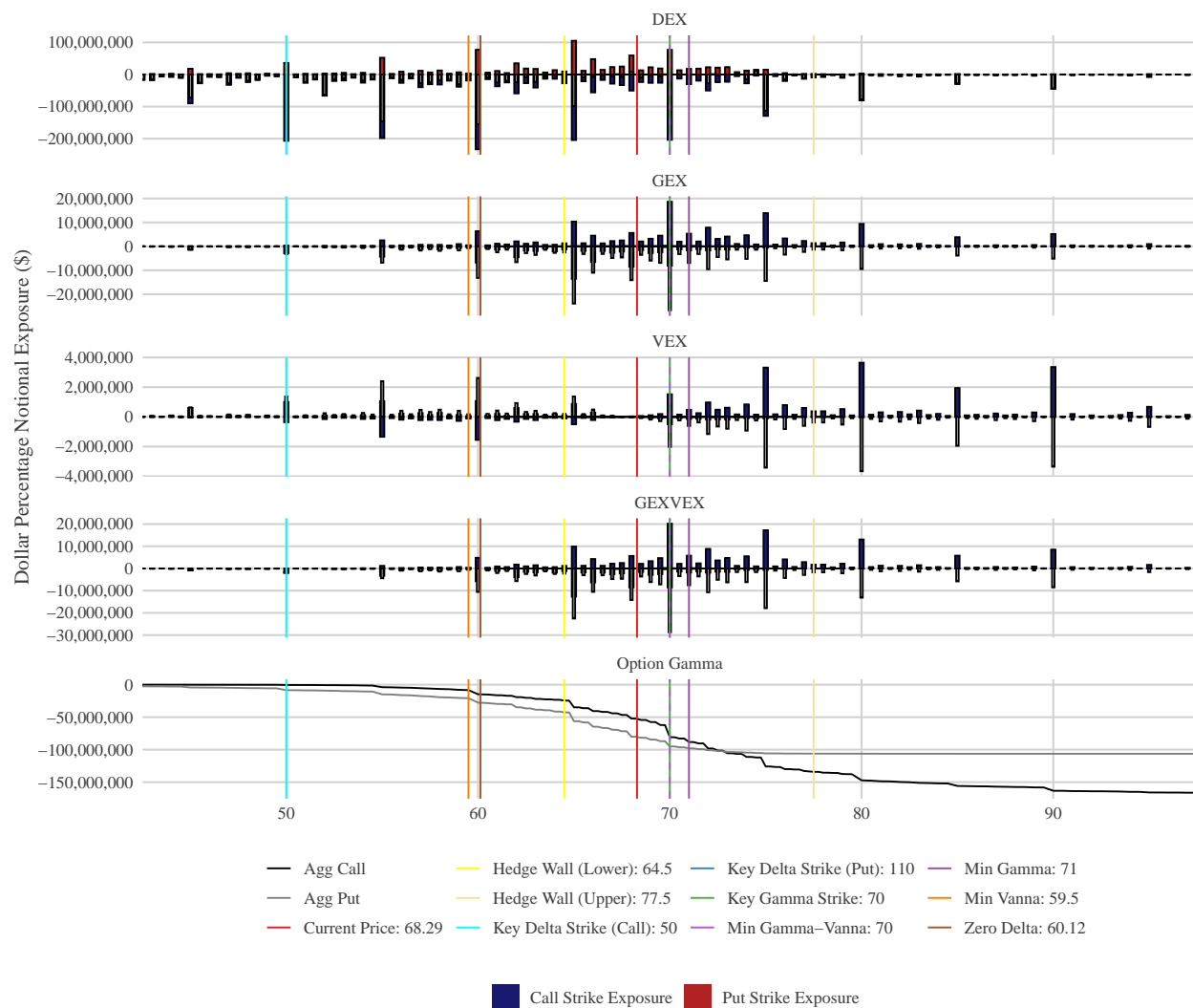
Largest Gamma Strike: 2021-08-17 0.411  
Largest Delta Strike (Put): 2021-08-13 -0.000645  
Largest Delta Strike (Call): 2021-11-16 0.588  
Next Expiration: 2021-08-13  
Next Expiration Gamma: 0.0138  
Next Expiration Delta: -0.000645  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
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## Strike Notional Exposure for Crude Oil WTI

Largest Gamma Strike: 2021-08-17 0.411  
Largest Delta Strike (Put): 2021-08-13 -0.000645  
Largest Delta Strike (Call): 2021-11-16 0.588  
Next Expiration: 2021-08-13  
Next Expiration Gamma: 0.0138  
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Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
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## 6 Appendix

### 6.1 Introduction to Options

A derivative is an investment instrument whose investment value is dependent on an underlying investment. Options are a form of derivative instrument that allows investors to engage in investing, speculating, and risk management activities. Options give market participants the right to purchase and sell the underlying security, or to deliver and receive the underlying security, at a predetermined price, which is also known as the Strike price. Each option has an expiration date, by which the holder of the option must decide whether to exercise the option.

A Call Option gives the holder the right to buy the underlying at the strike price, while a Put Option gives the holder the right to sell the underlying at the strike price. Accordingly, the seller of a Call Option has the obligation to deliver the underlying at the strike price, while the seller of a Put option has the obligation to receive the underlying at the strike price. Whether the holders of the options would exercise their rights, and whether the sellers of the options would be obligated, depends on the moneyness of the option.

An Out-of-the-Money (OTM) option would not be exercised by options holders, as they would be better off by transacting in the underlying directly. For instance, if a Call Option has a Strike of 100, and the underlying is at 90, it would be better for the investor to directly purchase the underlying at 90, rather than to exercise the right to purchase the underlying at 100. If a Put Option has a Strike of 100, and the underlying is at 110, it would be better for the investor to directly sell the underlying at 110, rather than to exercise the right to sell the underlying at 100. Accordingly, such options would have little value.

An In-the-Money (ITM) option would generally be exercised by options holders, as they would not be better off by transacting in the underlying directly. For instance, if a Call Option has a Strike of 100, and the underlying is at 110, it would be better for the investor to exercise the right to purchase the underlying at 100, rather than to directly purchase the underlying at 11. If a Put Option has a Strike of 100, and the underlying is at 90, it would be better for the investor to exercise the right to sell the underlying at 100, rather than to directly sell the underlying at 90. Accordingly, ITM options would have greater value than an OTM option.

The value of an option is influenced by many factors. The more pertinent factors are the price of the underlying, the strike price, the volatility of the underlying, and the time to expiration.



## 6.2 Quantifying Dealer Market Exposure

For market indices, dealers are assumed to be long call options, and short put options. For single-name indices, dealers are assumed to be short call options, and short put options.

For single-name indices, call gamma strike exposure and vanna strike exposure are assigned positive numbers, and put gamma strike exposure and vanna strike exposure are assigned negative numbers.

Dealers are generally exposed to three kinds of exposures: Delta, Gamma, and Vanna. Delta exposure refers to the value of the hedge that dealers are notionally exposed to, at a particular strike price. It is the dollar notional amount that dealers are holding or selling in order to remain protected (against small price movements).

What is of greater interest are the gamma and vanna exposures. Gamma exposure refers to the rate of change of the value of the hedge that dealers are notionally exposed to, with respect to changes in the underlying price. It measures the sensitivity of the delta notional exposure to changes in the underlying price. The metric utilized to assess dealer gamma exposure is known as Total Gamma Exposure (GEX). The rate of change of GEX can be denominated in per unit points, or percentage points.

Vanna exposure refers to the rate of change of the value of the hedge that dealers are notionally exposed to, with respect to changes in the volatility of the underlying. It measures the sensitivity of the delta notional exposure to changes in the volatility of the underlying. The metric utilized to assess dealer gamma exposure is known as Total Vanna Exposure (VEX). The rate of change of VEX can be denominated in per unit points, or percentage points.



### 6.3 Making Inferences

A high GEX indicates heightened dealer hedging activity, whereas a low GEX indicates subdued dealer hedging activity. A high GEX implies that dealers must purchase or sell a greater amount of the underlying in order to be protected against small price movements, while a low GEX implies that dealers must purchase or sell a lesser amount of the underlying in order to be protected against small price movements.

A positive GEX indicates that dealers would have to sell the underlying as the underlying price increases, and to buy the underlying as the underlying price decreases. Accordingly, a positive GEX indicates relative market calmness and tempered volatility, as dealer selling activity would put downward pressure on market highs, and dealer buying activity would put upward pressure on market lows. Expected market trading ranges can then be inferred.

A negative GEX indicates that dealers would have to sell the underlying as the underlying price decreases, and to buy the underlying as the underlying price increases. Accordingly, a negative GEX indicates relative market aggressiveness and heightened volatility, as dealer selling activity would put further downward pressure on market lows, and dealer buying activity would put further upward pressure on market highs. Expected market momentum and volatility can then be inferred. A high VEX indicates a heightened additional adjustment to the delta notional exposure for a given change in volatility, while a low VEX indicates a subdued additional adjustment to the delta notional exposure for a given change in volatility.

A positive VEX indicates that dealers would have to sell the underlying as the volatility of the underlying price increases, and to buy the underlying as the volatility of the underlying price decreases.

A negative VEX indicates that dealers would have to buy the underlying as the volatility of the underlying price increases, and to sell the underlying as the volatility of the underlying price decreases.

If GEX is positive, and if markets are experiencing decreasing volatility, a positive VEX, which induces buying activity of the underlying, tempers and subdues the selling activity of a positive GEX. This is usually the case for a market uptrend. If markets are experiencing increasing volatility, a positive VEX, which induces selling activity of the underlying, tempers and subdues the buying activity of a positive GEX. This is usually the case for a market downtrend. Expected market trading ranges can then be inferred.

If GEX is negative, and if markets are experiencing decreasing volatility, a positive VEX, which induces buying activity of the underlying, amplifies the buying activity of a negative GEX. This is usually the case for a sharp upward rebound in the market. If markets are experiencing increasing volatility, a positive VEX, which induces selling activity of the underlying, amplifies the selling activity of a negative GEX. This is usually the case for large downward spirals in the market, until the volatility of the underlying can no longer increase further. Expected market momentum and volatility can then be inferred.

The charts show the calculated distributions of DEX, GEX, VEX, and GEXVEX across different underlying prices, and the distributions of call and put gamma at each strike level (for plotting purposes, calls are given positive gamma, puts are given negative gamma). The net effect is also shown. The aggregated option gamma exposure for calls and puts indicates the volatility profile, and market sentiment of the underlying. Key price levels are indicated, and those serve as important price levels to be wary of.

For market indices, call delta strike exposure are assigned positive numbers, put delta strike exposure are assigned negative numbers, and call option gamma are assigned negative numbers for plotting purposes.

For single-name indices, call gamma strike exposure and vanna strike exposure are assigned positive numbers, and put gamma strike exposure and vanna strike exposure are assigned negative numbers for plotting purposes.



## 6.4 Key Price Levels

### 6.4.1 Market Indices

**Zero Gamma:** The Zero Gamma level is the price whereby there is zero dealer gamma notional exposure. At this level, expected dealer hedging activity is zero. This is a crucial level whereby dealer hedging activity may swing from suppressing volatility to exacerbating volatility, and it therefore acts as a major pivot point; large underlying price drawdowns may be observed if the underlying price crosses below this level, and it acts as a support level if the underlying price approaches this level.

**Max Gamma:** The Max Gamma level is the price at which dealer hedging activity due to changes in the underlying price is at the maximum. It serves as a major pinning point if the underlying is trading near that level.

**Max Vanna:** The Max Vanna level is the price at which dealer hedging activity due to changes in the volatility of the underlying is at the maximum. It serves as a major pivot point for the underlying, whereby the price movement of the underlying is most affected, and contingent on the volatility trend of the underlying.

**Key Delta Strike:** The Key Delta Strike level is the strike price whereby there is the largest positive delta notional position. It is the level whereby there is the highest level of dealer call and put delta. Downward price trends may be reversed upon expiration of this delta notional position. It serves as a support or resistance level for the underlying.

**Key Gamma Strike:** The Key Gamma Strike level is the strike price whereby there is the largest total gamma notional position. It is the strike price whereby there is heightened dealer hedging activity, and hence there should be heightened dealer influence in the underlying. It serves as a support or resistance level for the underlying.

**Call Wall:** The Call Wall level is the strike price whereby there is the largest net positive gamma notional position. It indicates the market sentiment and expectation of the upper limit of the underlying, should the underlying trend upwards. It serves as a major resistance point. If this level moves higher, it indicates a bullish sentiment whereby the upward run is not overextended. If this level moves lower, it indicates a bearish sentiment whereby the upward run is overextended.

**Put Wall:** The Call Wall level is the strike price whereby there is the largest net negative gamma notional position. It indicates the market sentiment and expectation of the lower limit of the underlying, should the underlying trend downwards. It serves as a major pivot point. If this level moves higher, it indicates a bearish sentiment whereby more market participants are seeking greater downside protection. If this level moves lower, it indicates a bullish sentiment whereby more market participants are seeking lower downside protection.

### 6.4.2 Single-name Indices

**Key Delta Strike (Put):** The Key Delta Strike (Put) level is the strike price whereby there is the largest positive net delta notional position. If the strike is above the price of the underlying, downward price trends may be reversed upon expiration of this delta notional position. It serves as a support or resistance level for the underlying.

**Key Delta Strike (Call):** The Key Delta Strike (Call) level is the strike price whereby there is the largest negative net delta notional position. If the strike is below the price of the underlying, upward price trends may be reversed upon expiration of this delta notional position. It serves as a support or resistance level for the underlying.



**Key Gamma Strike:** The Key Gamma Strike level is the strike price whereby there is the largest total gamma notional position. It is the strike price whereby there is heightened dealer hedging activity, and hence there should be heightened dealer influence in the underlying. It serves as a support or resistance level for the underlying.

**Zero Delta:** The Zero Delta level is the price whereby there is zero dealer delta notional exposure. It serves as a pivot point for the underlying, whereby the impact of dealer hedging activity on the market is minimized.

**Lower Hedge Wall:** The Lower Hedge Wall level is the price whereby downside gamma exposure starts to decrease. It serves as a price level whereby downside market volatility may reduce.

**Upper Hedge Wall:** The Lower Hedge Wall level is the price whereby upside gamma exposure starts to decrease. It serves as a price level whereby upside market volatility may reduce.

**Min Vanna:** The Min Vanna level is the price at which dealer hedging activity due to changes in the volatility of the underlying is at the maximum. It serves as a major pivot point for the underlying, whereby the price movement of the underlying is most affected, and contingent on the volatility trend of the underlying.

GEXVEX aggregates the effects of Gamma and Vanna.