

# PromiseLand



## PromiseLand's Daily 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 participants 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

Today is an important day, as it is Options Expiry (OPEX) day for the majority of the market indices and stocks. We anticipate that there could be huge market shifts next week, as these options are set to expire today (Friday).

### 2.1 S&P500

The S&P500 closed with a return of -0.15%.

Recent US economic data was mostly bullish for the general market as a whole. US August retail sales rose by 0.7% month-on-month. This is stronger than expectations of -0.7% month-on-month. Aug retail sales (ex-autos) rose by 1.8% month-on-month, stronger than expectations of 0%. The increase was the largest in 5 months.

The current set-up of the S&P500 provides an interesting opportunity to take advantage of a potential upswing of prices in the short to medium term (next week). Firstly, 53% of dealer gamma exposure and 28.6% of dealer delta exposure are set to expire today. With the relatively high percentage of gamma expiration, we expect that prices should shift away from current levels. With a relatively high percentage of delta expiration, there should be a huge price impact. Taken together, there should be a huge upward tendency for price levels next Monday, as dealers unwind their short positions. Secondly, the S&P500 is now in negative gamma territory, which indicates heightened volatility. Negative dealer gamma exposure also amplifies market trends. Taken together, the effects of dealers unwinding their short positions could be amplified, which translate to huge upwards momentum in the coming days. We expect for the the S&P500 approach the 4500 Call Wall level, if not, at the very least, the 4480 Zero Gamma Level.

Possible impediments to the upswing are increased concerns that the Fed may be closer to executing quantitative easing tapering, in light of fresh robust retail sales data. Also, US weekly initial unemployment claims rose by 20,000 to 332,000. This shows a weaker labor market than expectations of 322,000. The downside should be limited to the Put Wall of 4400, which translates to a drawdown of approximately 1.65%, using current price levels.

Suggested Unit Trust: Natixis Harris Associates US Equity RE USD

Suggested ETF: iShares Core S&P 500 ETF

**Expected price range: 4400 - 4500.**

### 2.2 NASDAQ100

The NASDAQ100 closed with a return of 0.08%.

The current set-up of the NASDAQ100 provides an interesting opportunity to take advantage of a potential upswing of prices in the short to medium term (next week) as well. 69.9% of dealer gamma exposure and 43.5% of dealer delta exposure are set to expire today. With the relatively high percentage of gamma expiration, we expect that prices should shift away from current levels. With a relatively high percentage of delta expiration, there should be a huge price impact. Taken together, there should be a huge upward tendency for price levels next Monday, as dealers unwind their short positions.

Unlike the S&P500, the NASDAQ100 is positive gamma territory. Accordingly, market movements should be relatively more subdued, compared to the S&P500. The significant dealer long gamma exposure at the



15500 level should also act as a firm support level for the index, as dealers would have to buy stocks when prices fall, in order to remain delta neutral. This should buoy prices up, should price levels fall.

Possible impediments to the upswing are increased concerns that the Fed may be closer to executing quantitative easing tapering, in light of fresh robust retail sales data. Also, US weekly initial unemployment claims rose by 20,000 to 332,000. This shows a weaker labor market than expectations of 322,000.

Suggested Unit Trust: Franklin Technology A Acc USD

Suggested ETF: iShares NASDAQ 100 UCITS ETF USD

**Expected price range: 15500 - 15600.**

## 2.3 STOXX50

The STOXX50 closed with a return of 0.58%. Travel and leisure stocks added 3% to lead the gains, while Basic resources bucked the trend, slipping 2.5%.

The STOXX50 remains in negative gamma territory. 38.1% of dealer gamma exposure and 11.6% of dealer delta exposure are set to expire today. With the relatively high percentage of gamma expiration, we expect that prices should shift away from current levels. With a relatively low percentage of delta expiration, there could be a minimal to moderate price impact. Accordingly, there could be a moderate tendency for price levels next Monday, as dealers unwind their short positions.

**Expected price range: 4100 - 4250.**

## 2.4 DAX

The DAX closed with a return of 0.28%.

The DAX remains in negative gamma territory. 58.5% of dealer gamma exposure and 22.4% of dealer delta exposure are set to expire today. With the relatively high percentage of gamma expiration, we expect that prices should shift away from current levels. With a relatively low percentage of delta expiration, there could be a minimal to moderate price impact. Accordingly, there could be a moderate tendency for price levels next Monday, as dealers unwind their short positions.

**Expected price range: 15600 - 16800.**

## 2.5 Gold

Gold traded lower. Gold prices were weighed down on Thursday, in light of higher global bond yields. Also, Thursday's better-than-expected US economic data strengthened the chances for the Fed to taper quantitative easing sooner, rather than later.

**Expected price range: 1750- 1800.**

## 2.6 Silver

Silver traded lower. We expect it to remain stable around this price range.

**Expected price range: 22 - 24.**



## 2.7 Crude Oil

Crude oil traded higher. Thursday's US economic data was mostly better than expected. This is bullish for energy demand and crude prices. Global oil supplies fell in August amid unexpected disruptions, and that global crude supplies may not increase until October, as US crude output losses from Hurricane Ida wiped out increases in production from OPEC countries.

**Expected price range: 65 - 80.**



### 3 Market Price Levels

Table 1: Key Price Levels for Market Indices

	S&P500	NASDAQ100	STOXX50	DAX
Current Price	4473.75	15515.91	4169.87	15651.75
Previous Price	4480.70	15503.53	4145.94	15616.00
Return	-0.001550	0.000798	0.005760	0.002290
Call Wall	4500	15500	4300	16000
Key Delta Strike	4000	15100	4100	15600
Key Gamma Strike	4500	15500	4100	15600
Max Gamma Vanna	4490	15490	4200	15800
Max Gamma	4555	15680	4300	16350
Max Vanna	4485	15490	4175	15800
Put Wall	4400	15250	3900	15700
Zero Gamma Vanna	3751.12	11655.21	3429.47	13849.50
Zero Gamma	4479.63	15477.58	4187.69	15802.45

Table 2: Key Dates for Market Indices

	S&P500	NASDAQ100	STOXX50	DAX
Largest Gamma Strike Date	2021-09-17	2021-09-17	2021-09-17	2021-09-17
Largest Gamma Strike	0.530	0.699	0.381	0.585
Largest Delta Strike Date	2021-09-17	2021-09-17	2021-12-17	2021-12-17
Largest Delta Strike	0.286	0.435	0.421	0.565
Next Expiration Date	2021-09-17	2021-09-17	2021-09-17	2021-09-17
Next Expiration Gamma	0.530	0.699	0.381	0.585
Next Expiration Delta	0.286	0.435	0.116	0.224



Table 3: Key Price Levels for Single-name Indices

	Gold Futures	Silver Futures	ICE Crude Oil Brent	Crude Oil WTI
Current Price	1760.1700	22.9493	75.6700	72.6100
Previous Price	1793.36	23.82	75.46	72.61
Return	-0.01870	-0.03730	0.00278	0.00000
Hedge Wall (Lower)	1727.500	22.175	58.000	54.500
Hedge Wall (Upper)	1857.500	25.575	83.500	85.250
Key Delta Strike (Call)	1850.00	18.25	75.00	70.00
Key Delta Strike (Put)	1650	22	35	110
Key Gamma Strike	1750	24	75	75
Min Gamma Vanna	1727.500	24.225	71.250	69.750
Min Gamma	1782.5	24.3	74.0	73.0
Min Vanna	1710.00	22.20	58.50	55.75
Zero Delta	1749.85	23.14	62.20	58.78

Table 4: Key Dates for Single-name Indices

	Gold Futures	Silver Futures	ICE Crude Oil Brent	Crude Oil WTI
Largest Gamma Strike Date	2021-09-27	2021-09-27	2021-10-26	2021-11-16
Largest Gamma Strike	0.305	0.354	0.391	0.436
Largest Delta Strike Date (Put)	2021-09-27	2021-09-27	2022-06-27	2021-10-08
Largest Delta Strike (Put)	-1.20e+00	1.67e+00	-1.22e-04	1.85e-05
Largest Delta Strike Date (Call)	2022-05-26	2022-06-27	2021-10-26	2021-11-16
Largest Delta Strike (Call)	1.520	-0.921	0.547	0.615
Next Expiration Date	2021-09-17	2021-09-17	2021-09-27	2021-09-17
Next Expiration Gamma	0.0992	0.0604	0.2410	0.0263
Next Expiration Delta	-0.34100	0.23000	0.08560	0.00243



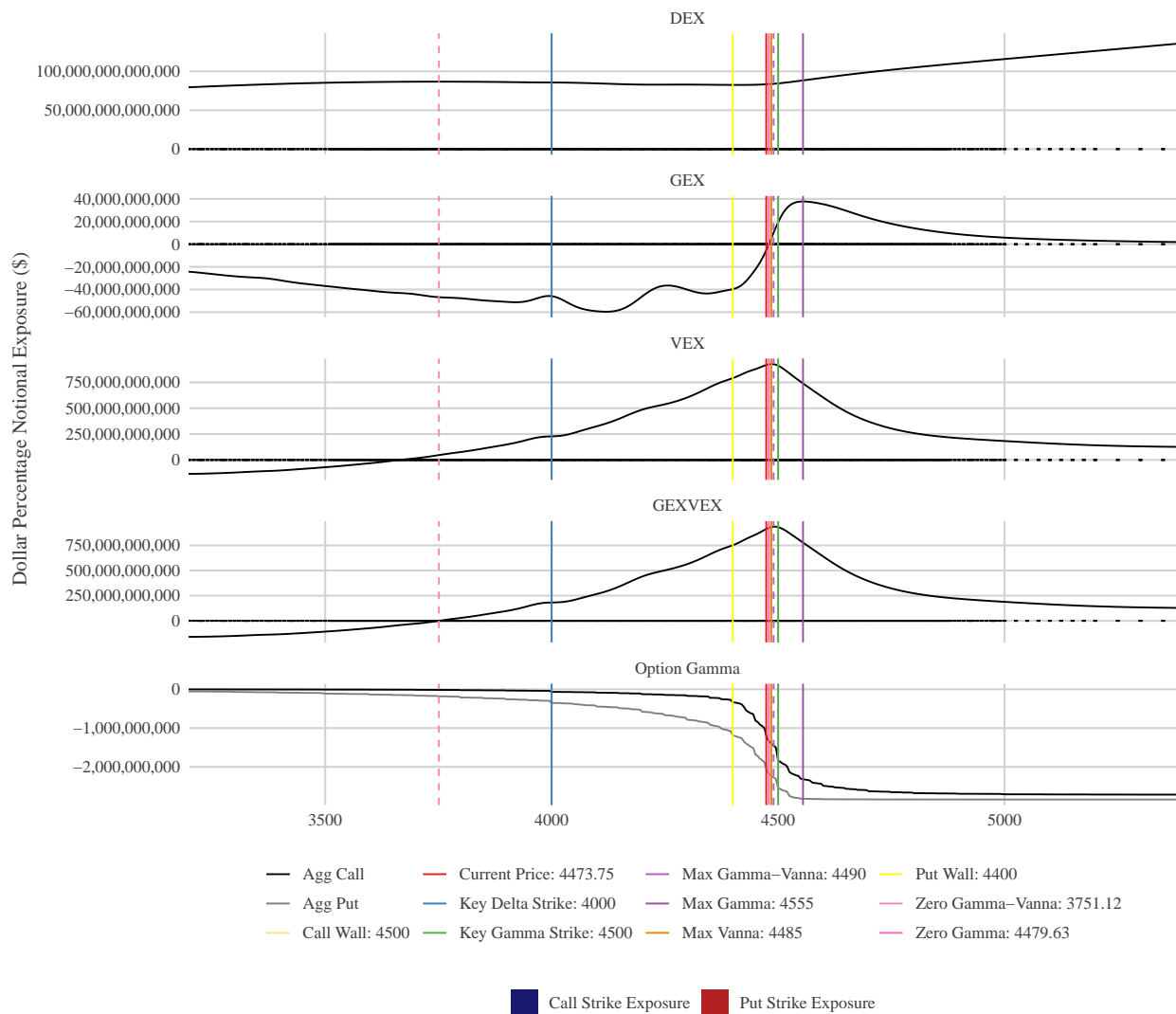


## 4 Market Indices

### 4.1 S&P500

#### Dollar Notional Exposure for SPX

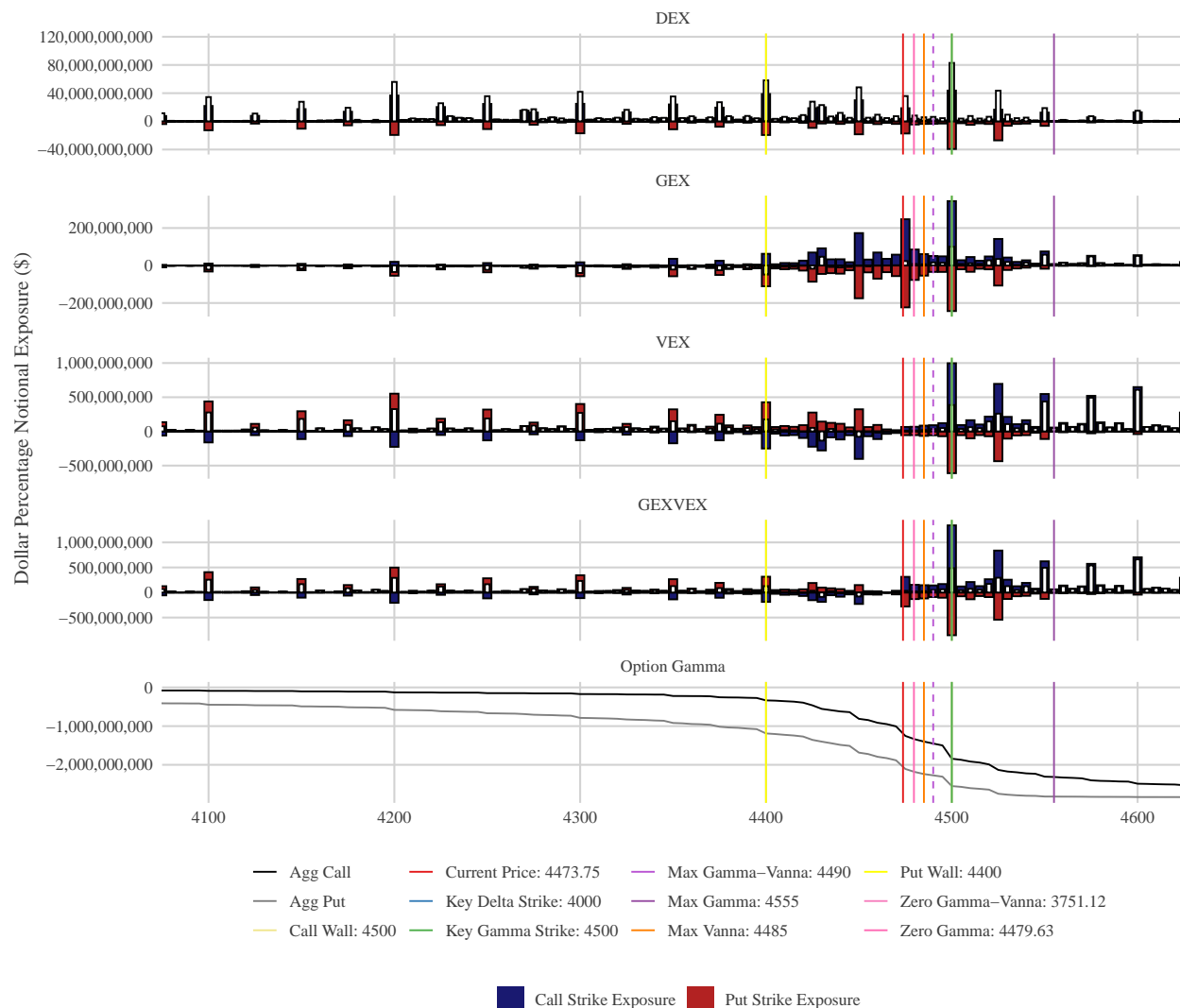
Largest Gamma Strike: 2021-09-17 0.53  
Largest Delta Strike: 2021-09-17 0.286  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.53  
Next Expiration Delta: 0.286  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17





## Strike Notional Exposure for SPX

Largest Gamma Strike: 2021-09-17 0.53  
Largest Delta Strike: 2021-09-17 0.286  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.53  
Next Expiration Delta: 0.286  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17

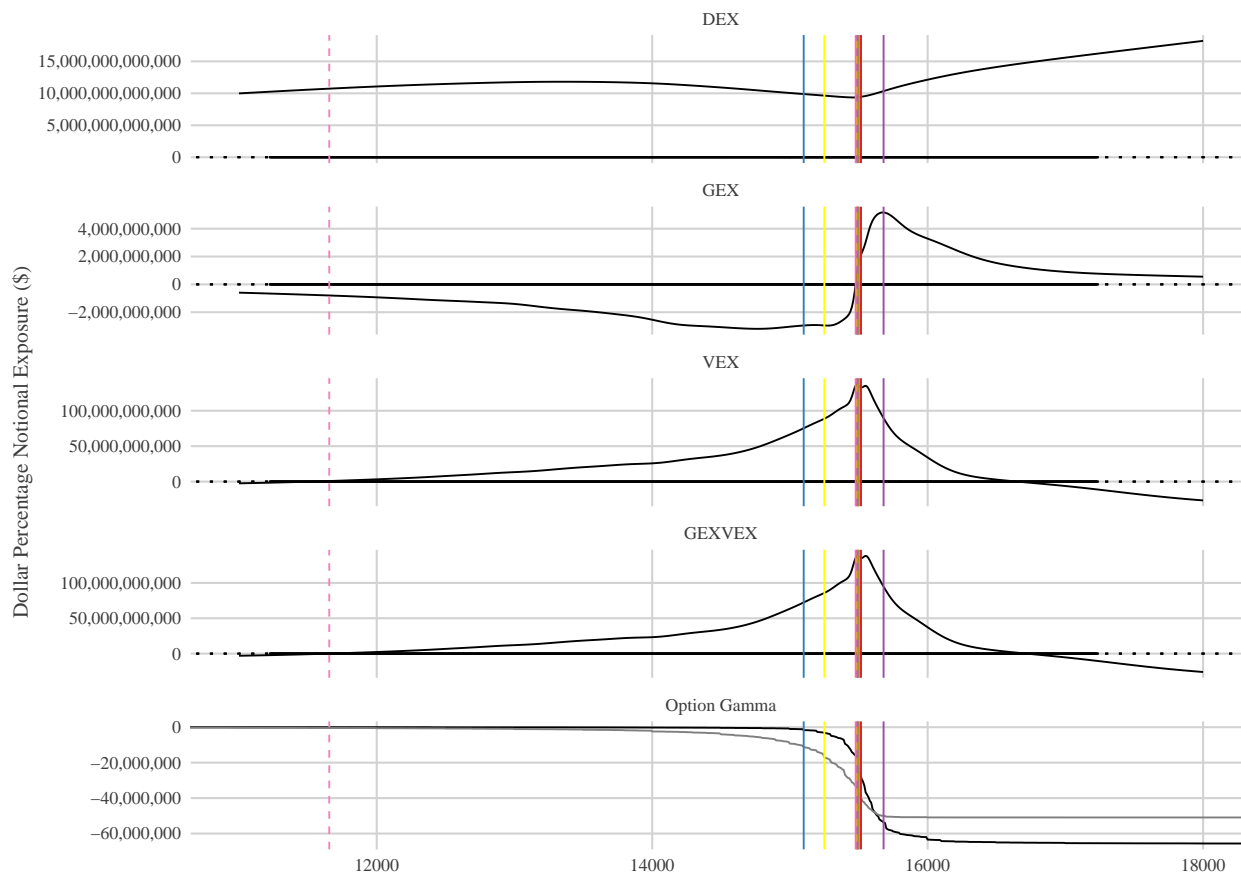




## 4.2 NASDAQ100

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

Largest Gamma Strike: 2021-09-17 0.699  
Largest Delta Strike: 2021-09-17 0.435  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.699  
Next Expiration Delta: 0.435  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17



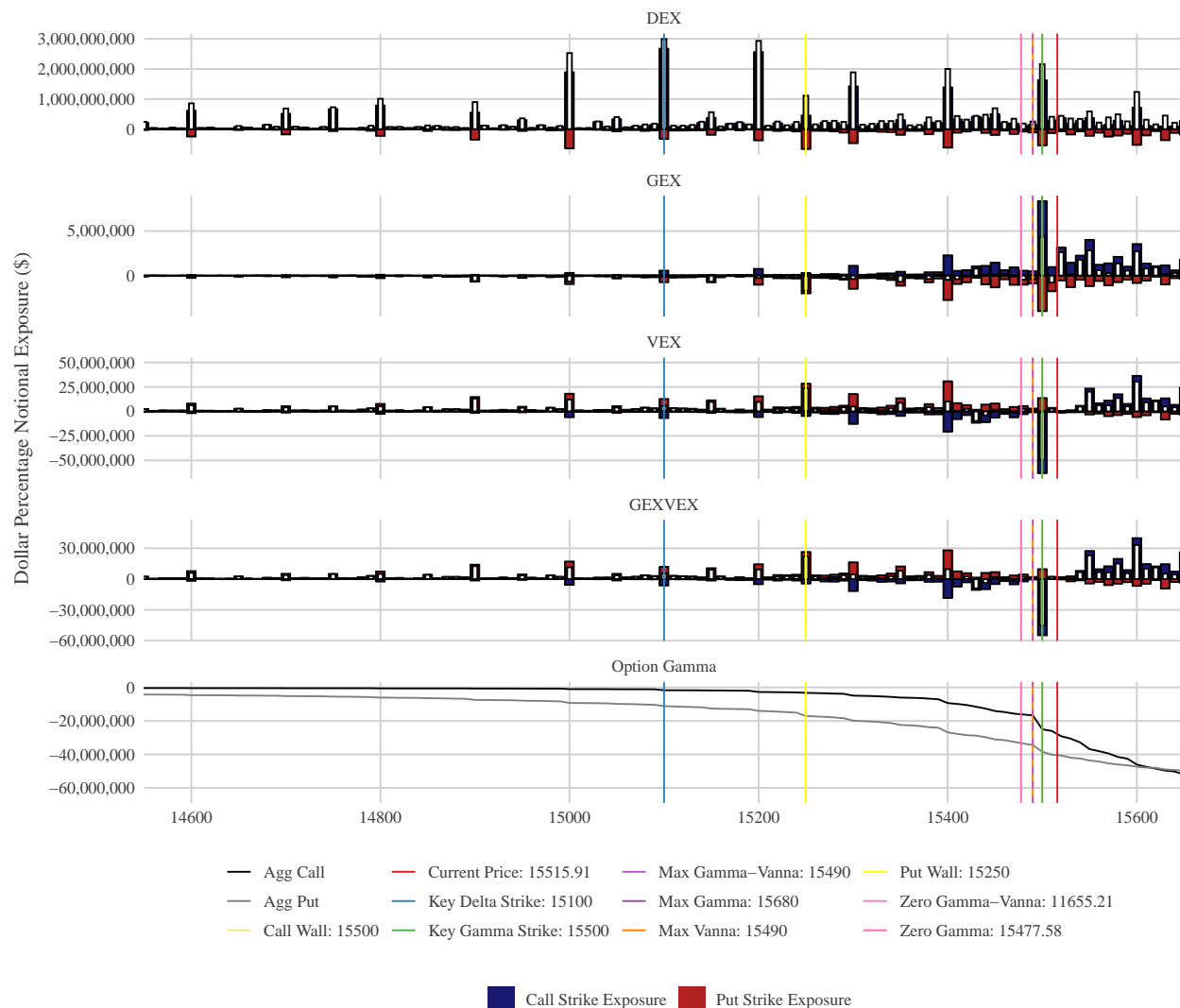
— Agg Call      — Current Price: 15515.91      — Max Gamma-Vanna: 15490      — Put Wall: 15250  
— Agg Put      — Key Delta Strike: 15100      — Max Gamma: 15680      — Zero Gamma-Vanna: 11655.21  
— Call Wall: 15500      — Key Gamma Strike: 15500      — Max Vanna: 15490      — Zero Gamma: 15477.58

■ Call Strike Exposure      ■ Put Strike Exposure



## Strike Notional Exposure for NASDAQ 100 E-Mini

Largest Gamma Strike: 2021-09-17 0.699  
Largest Delta Strike: 2021-09-17 0.435  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.699  
Next Expiration Delta: 0.435  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17

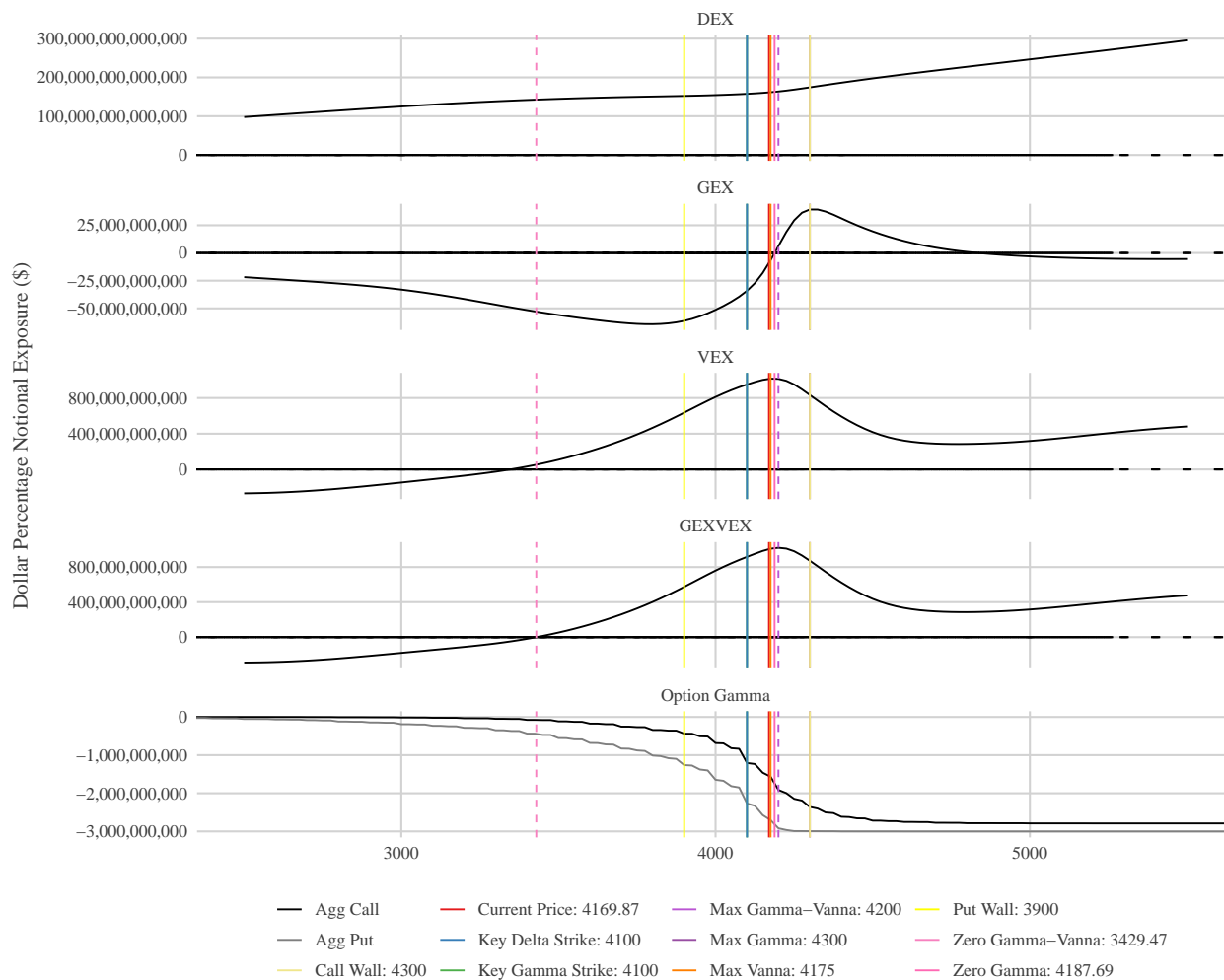




### 4.3 STOXX50

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

Largest Gamma Strike: 2021-09-17 0.381  
Largest Delta Strike: 2021-12-17 0.421  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.381  
Next Expiration Delta: 0.116  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17



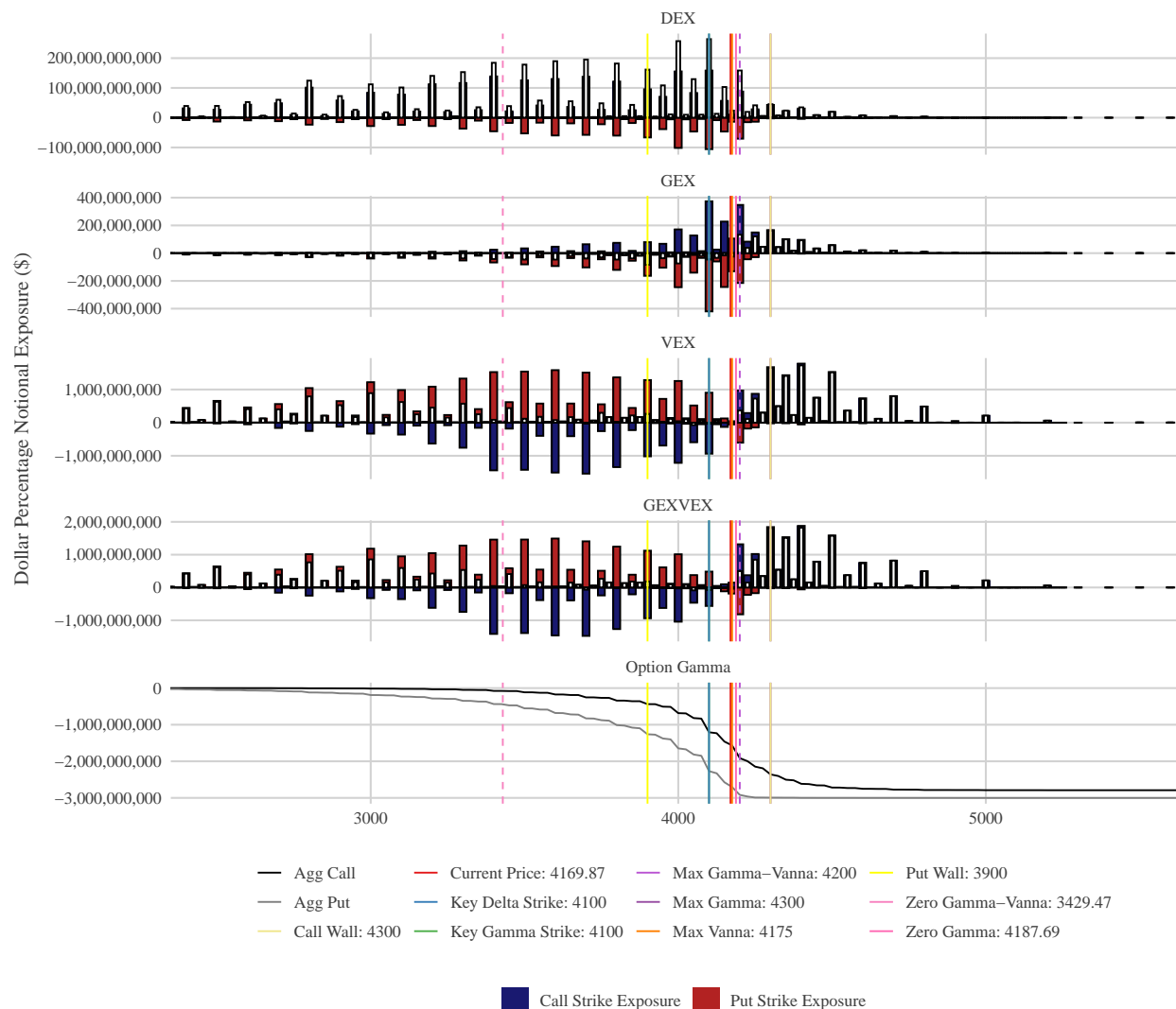
Call Strike Exposure

Put Strike Exposure



## Strike Notional Exposure for Euro Stoxx 50 Futures

Largest Gamma Strike: 2021-09-17 0.381  
Largest Delta Strike: 2021-12-17 0.421  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.381  
Next Expiration Delta: 0.116  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17

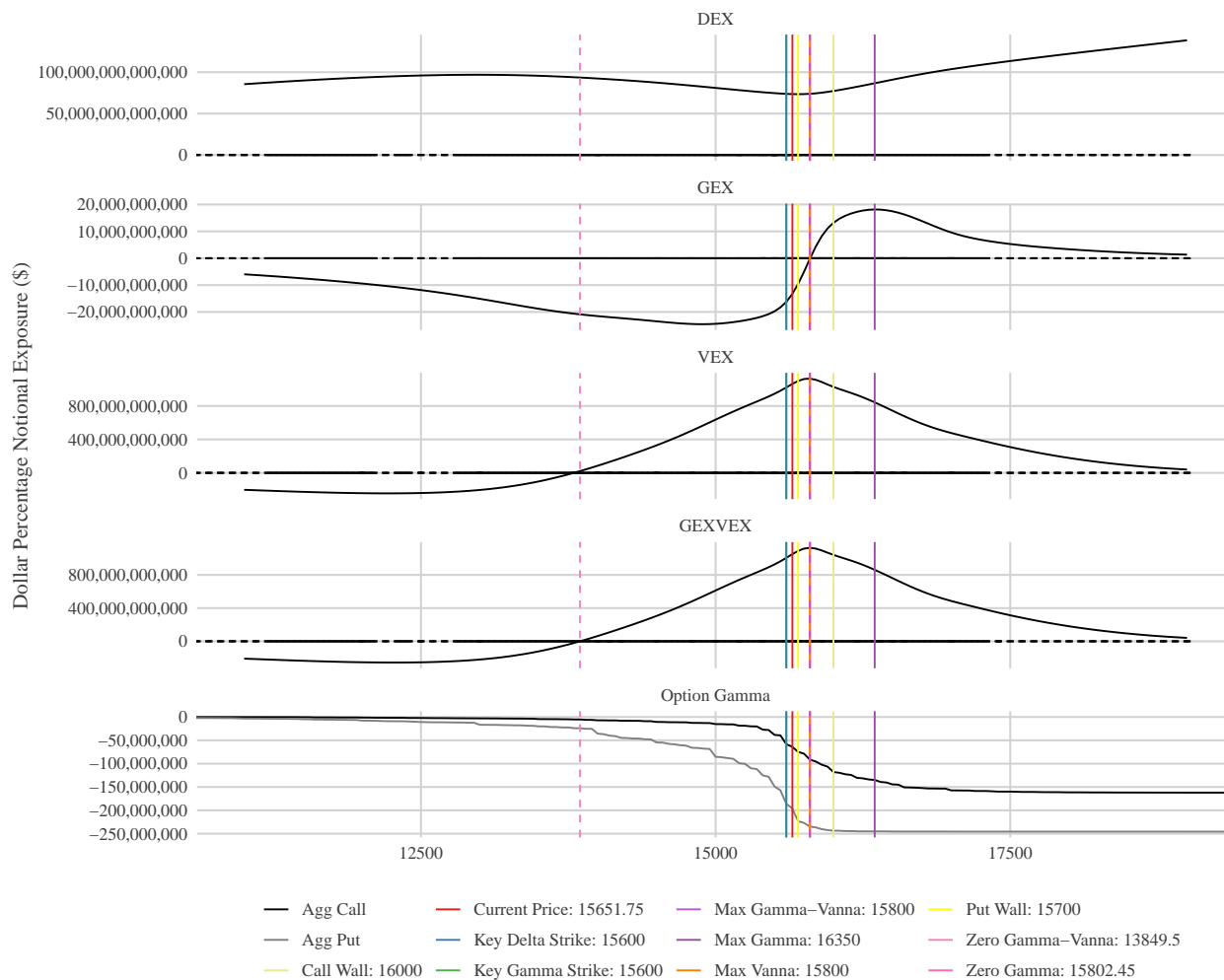




## 4.4 DAX

### Dollar Notional Exposure for DAX Futures

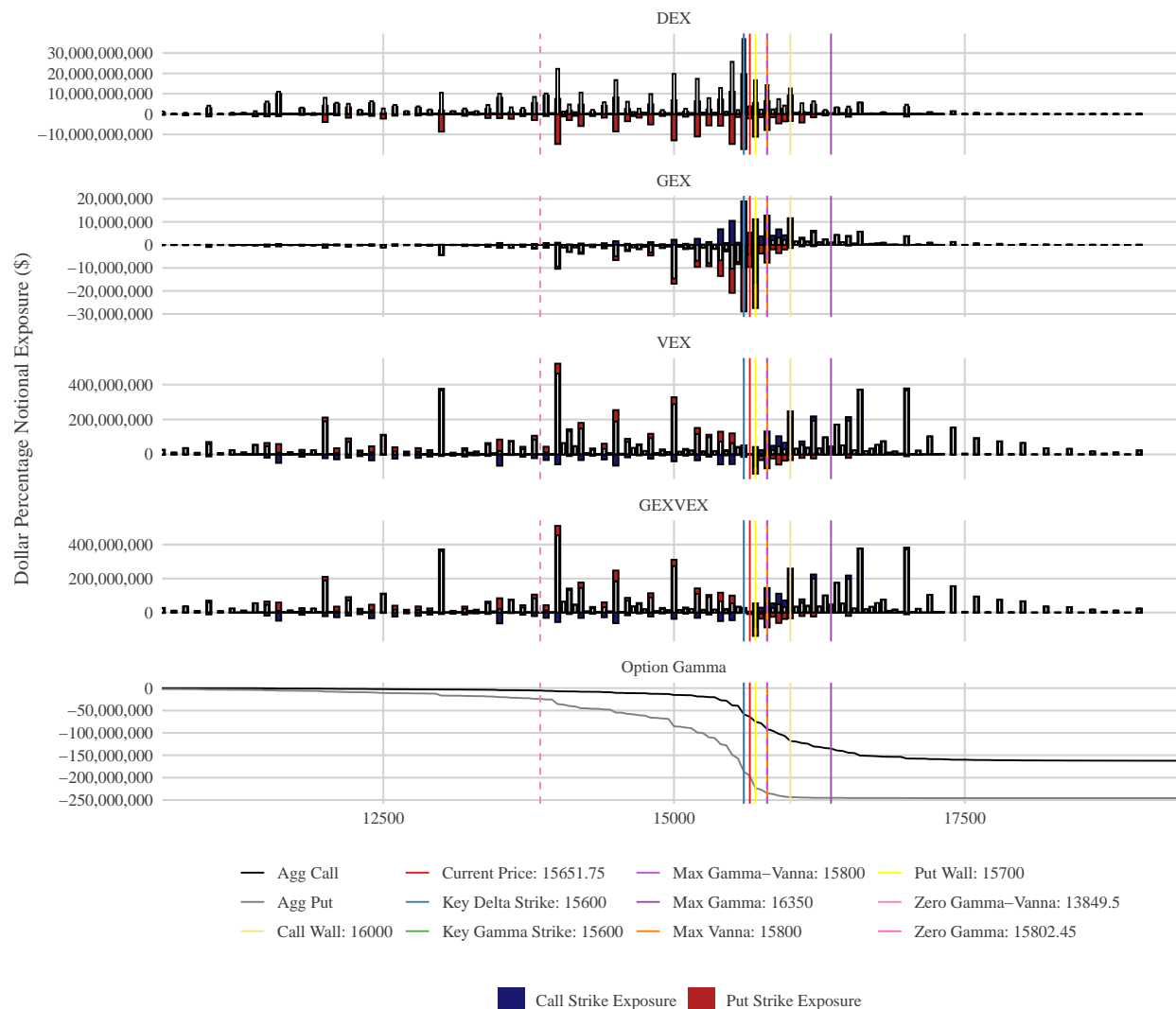
Largest Gamma Strike: 2021-09-17 0.585  
Largest Delta Strike: 2021-12-17 0.565  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.585  
Next Expiration Delta: 0.224  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17





## Strike Notional Exposure for DAX Futures

Largest Gamma Strike: 2021-09-17 0.585  
Largest Delta Strike: 2021-12-17 0.565  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.585  
Next Expiration Delta: 0.224  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17





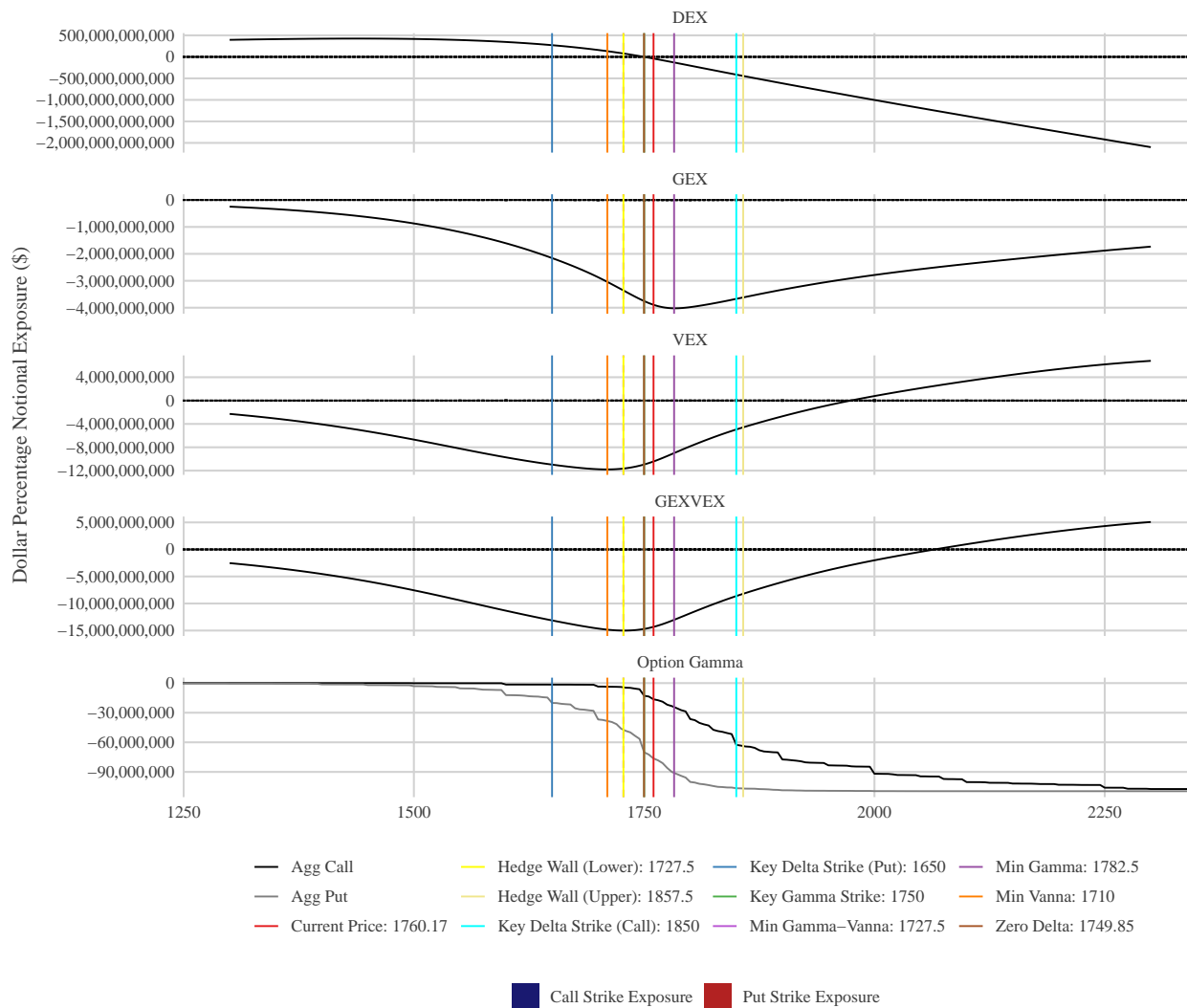


## 5 Commodities

### 5.1 Gold

#### Dollar Notional Exposure for Gold Futures

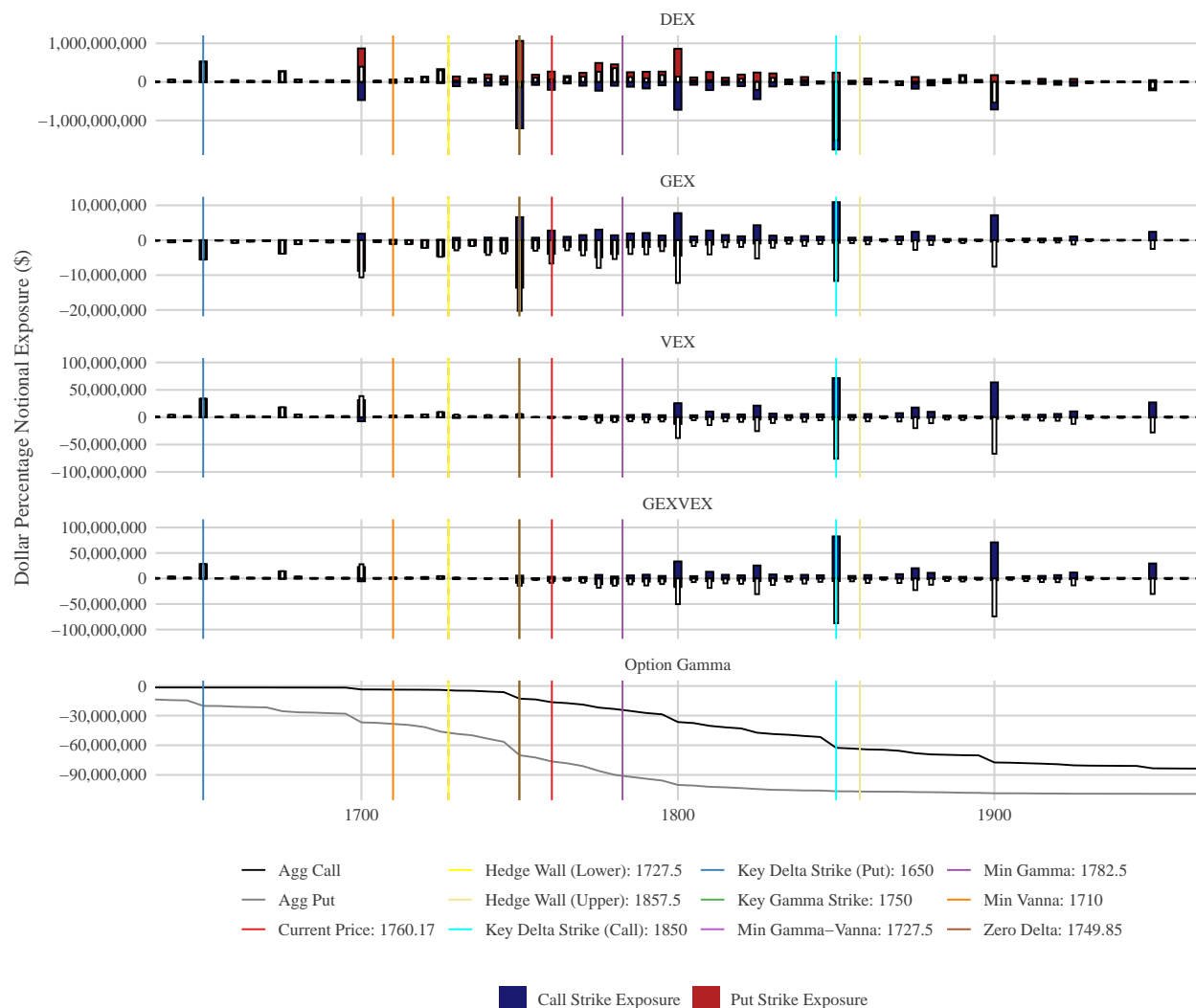
Largest Gamma Strike: 2021-09-27 0.305  
Largest Delta Strike (Put): 2021-09-27 -1.2  
Largest Delta Strike (Call): 2022-05-26 1.52  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.0992  
Next Expiration Delta: -0.341  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17





## Strike Notional Exposure for Gold Futures

Largest Gamma Strike: 2021-09-27 0.305  
Largest Delta Strike (Put): 2021-09-27 -1.2  
Largest Delta Strike (Call): 2022-05-26 1.52  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.0992  
Next Expiration Delta: -0.341  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17

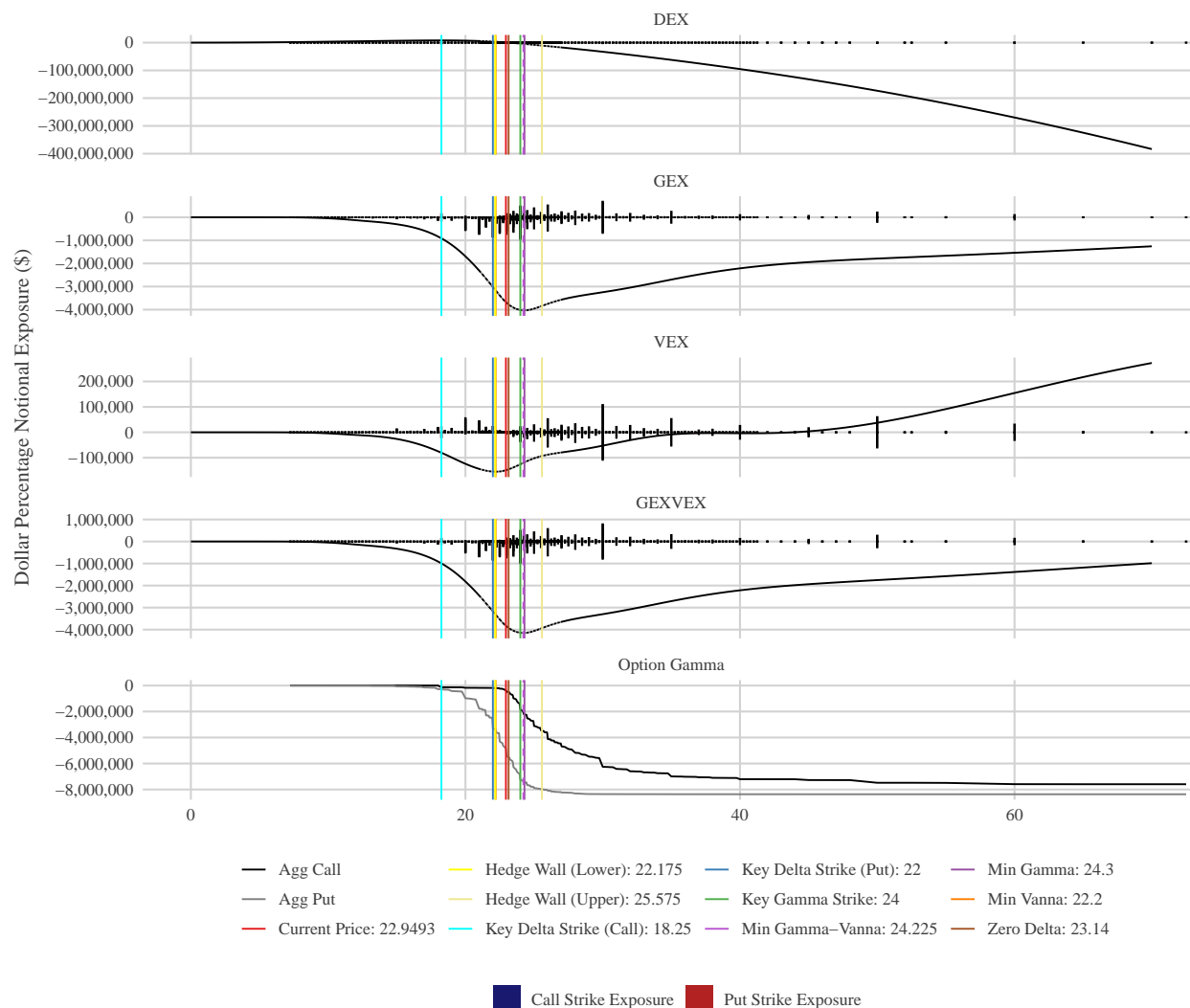




## 5.2 Silver

### Dollar Notional Exposure for Silver Futures

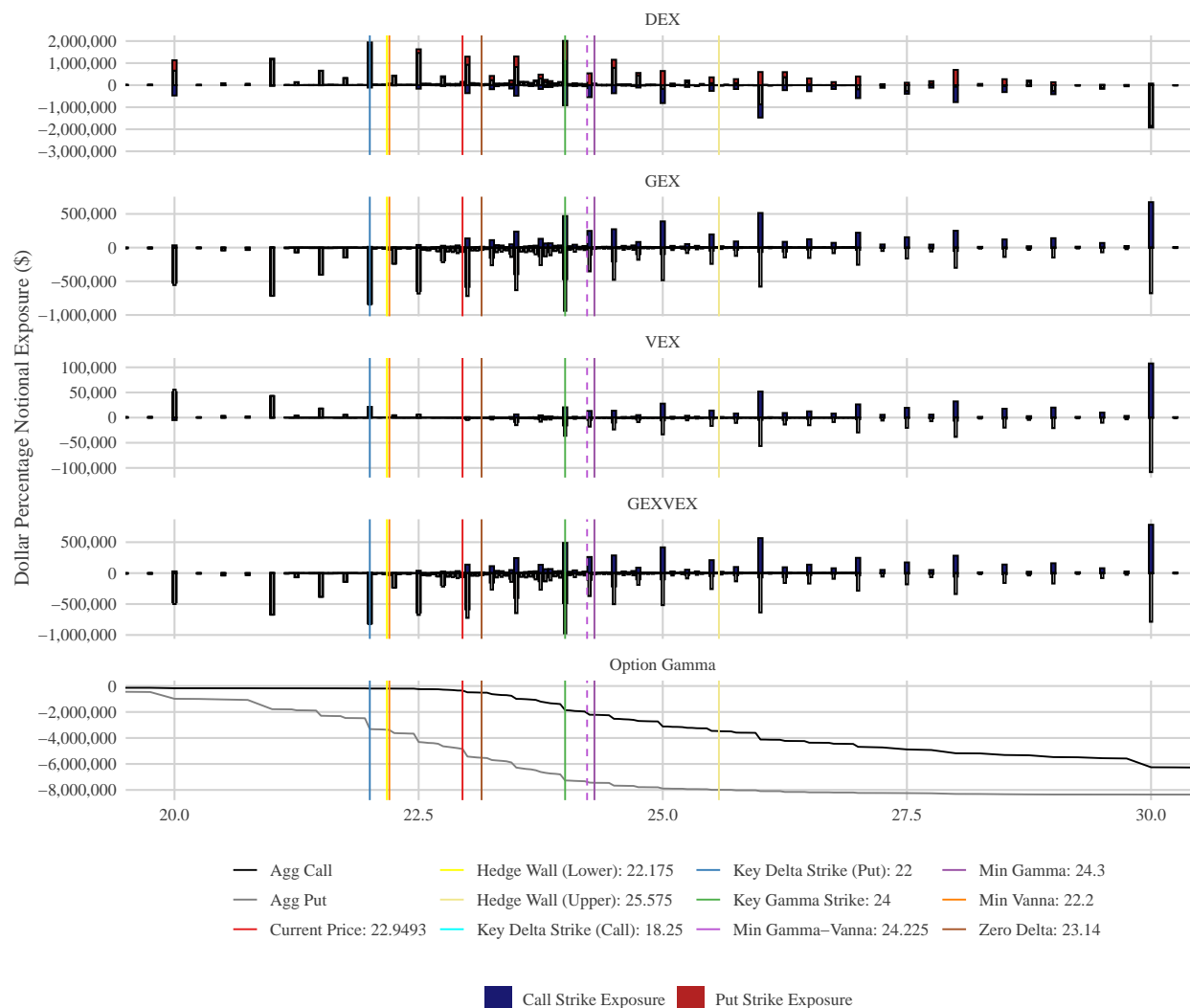
Largest Gamma Strike: 2021-09-27 0.354  
Largest Delta Strike (Put): 2021-09-27 1.67  
Largest Delta Strike (Call): 2022-06-27 -0.921  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.0604  
Next Expiration Delta: 0.23  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17





## Strike Notional Exposure for Silver Futures

Largest Gamma Strike: 2021-09-27 0.354  
Largest Delta Strike (Put): 2021-09-27 1.67  
Largest Delta Strike (Call): 2022-06-27 -0.921  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.0604  
Next Expiration Delta: 0.23  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17



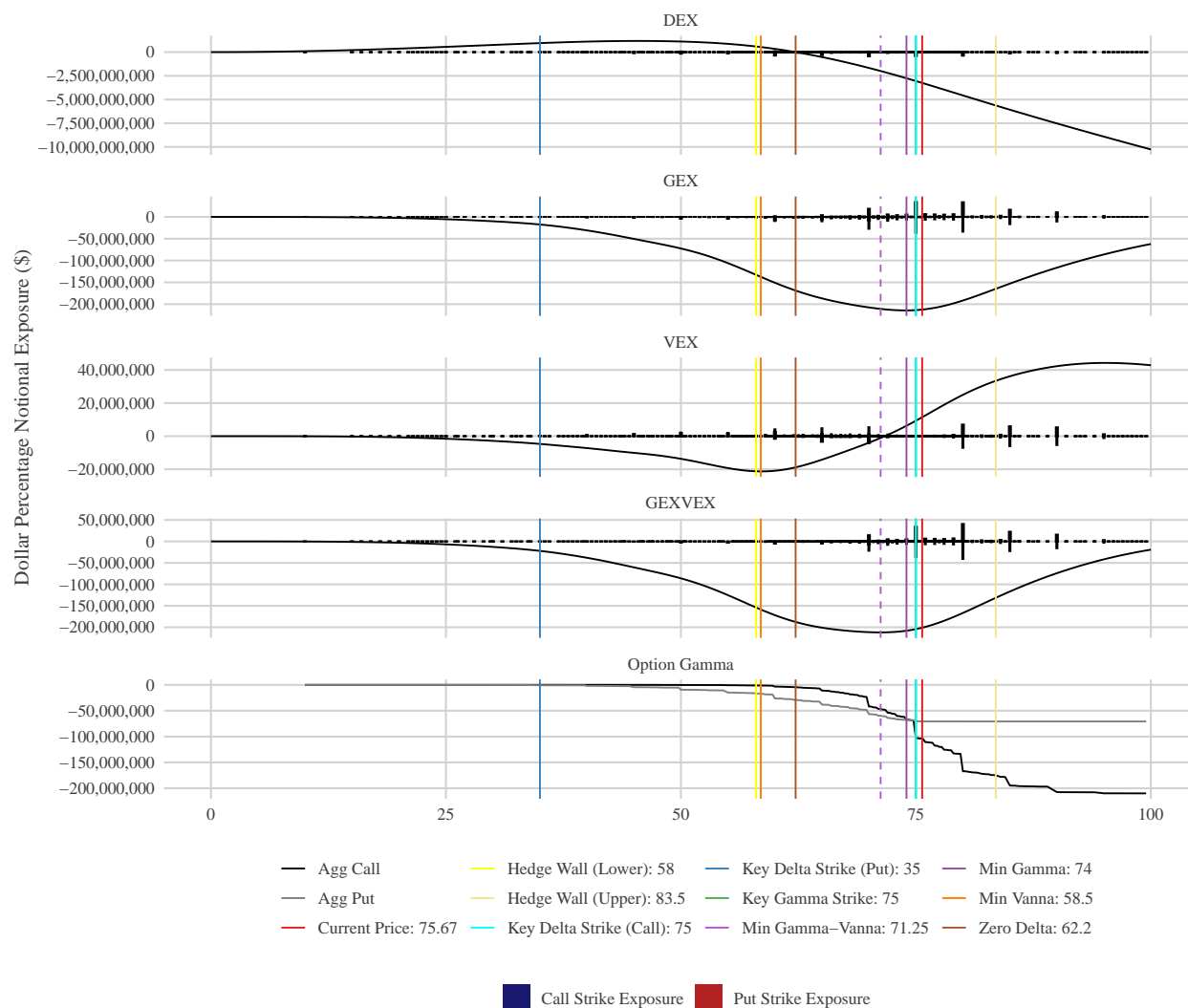


## 5.3 Crude Oil

### 5.3.1 Brent

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

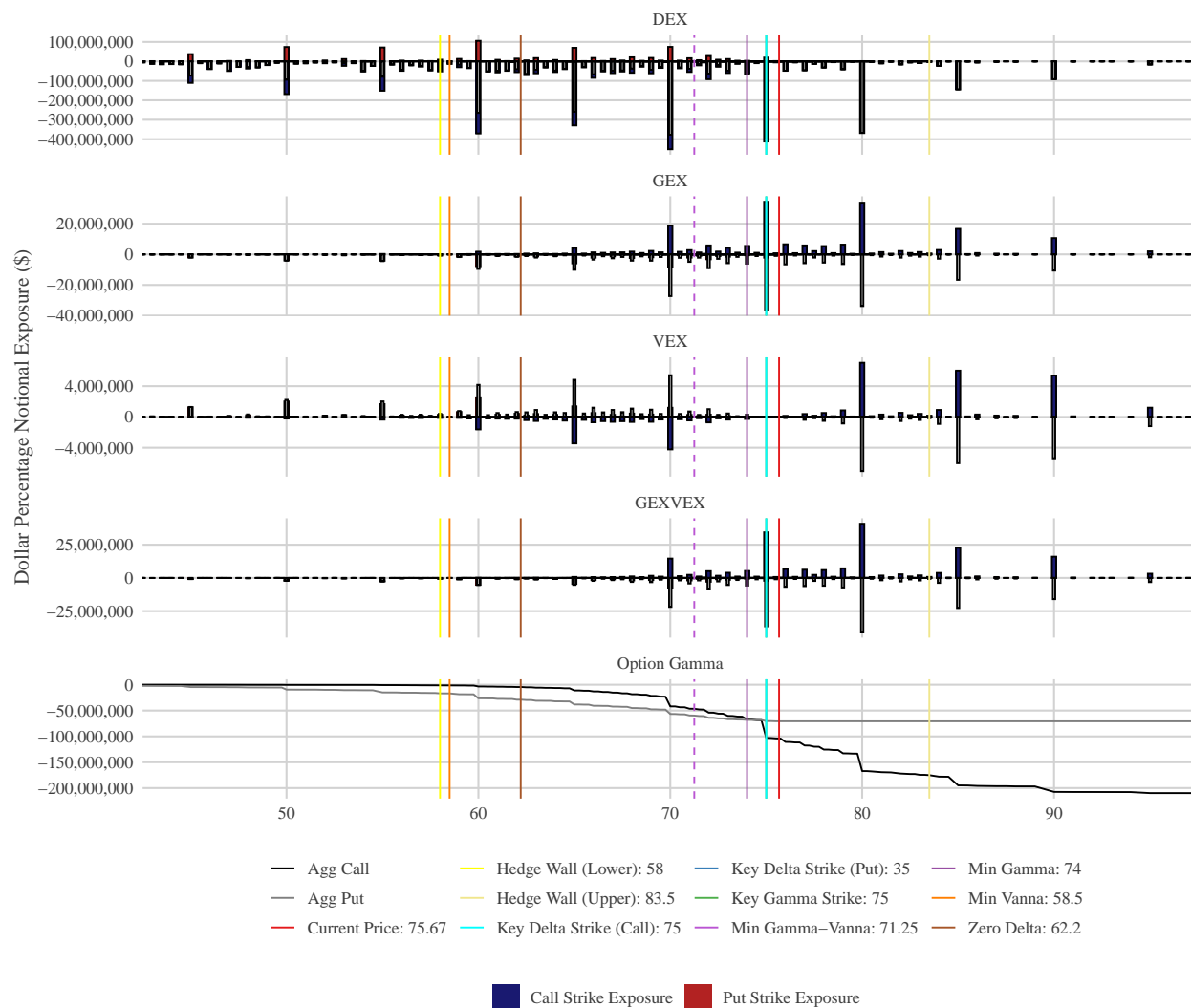
Largest Gamma Strike: 2021-10-26 0.391  
Largest Delta Strike (Put): 2022-06-27 -0.000122  
Largest Delta Strike (Call): 2021-10-26 0.547  
Next Expiration: 2021-09-27  
Next Expiration Gamma: 0.241  
Next Expiration Delta: 0.0856  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17





## Strike Notional Exposure for ICE Crude Oil Brent

Largest Gamma Strike: 2021-10-26 0.391  
Largest Delta Strike (Put): 2022-06-27 -0.000122  
Largest Delta Strike (Call): 2021-10-26 0.547  
Next Expiration: 2021-09-27  
Next Expiration Gamma: 0.241  
Next Expiration Delta: 0.0856  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17

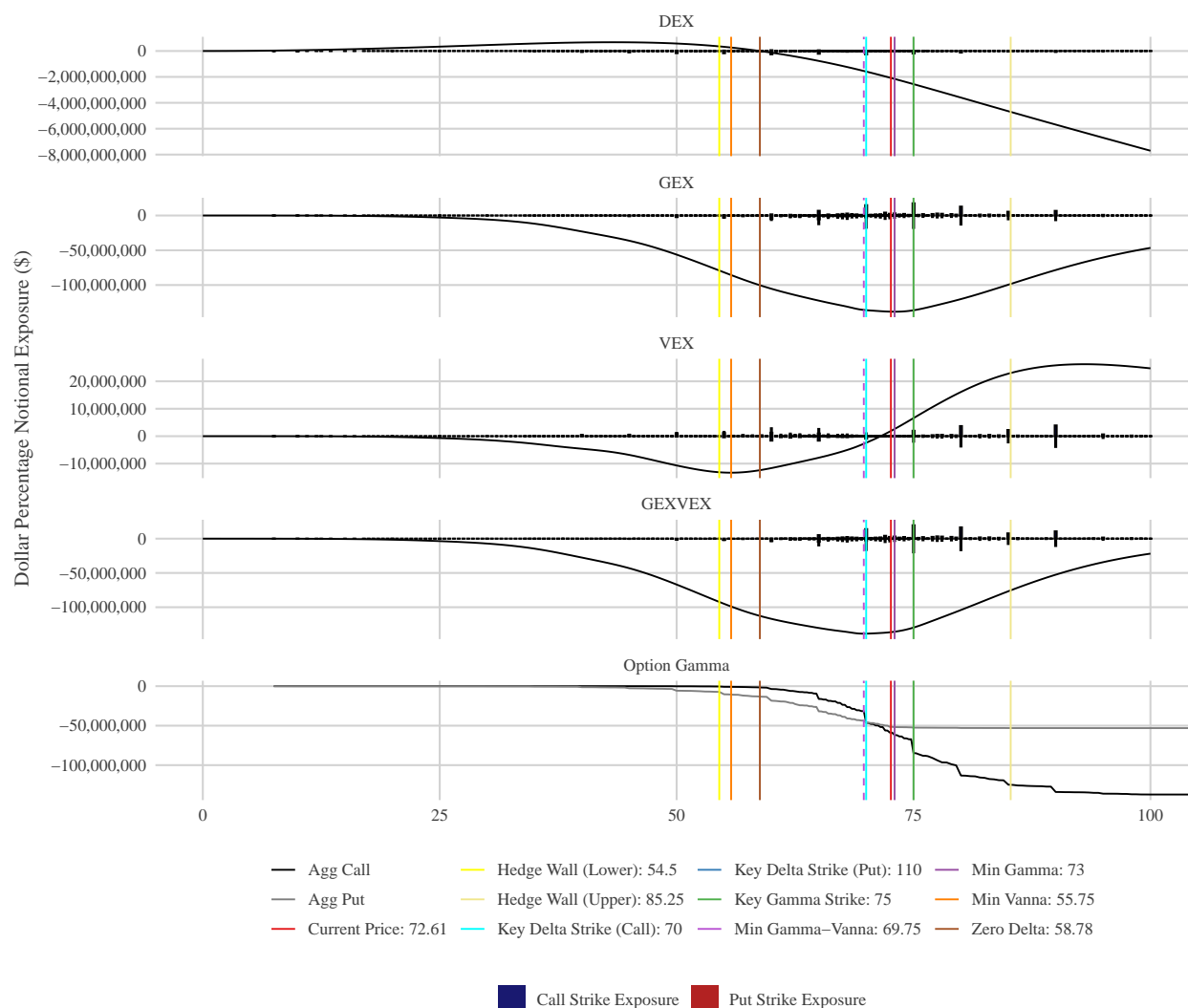




### 5.3.2 West Texas Intermediate (WTI)

#### Dollar Notional Exposure for Crude Oil WTI

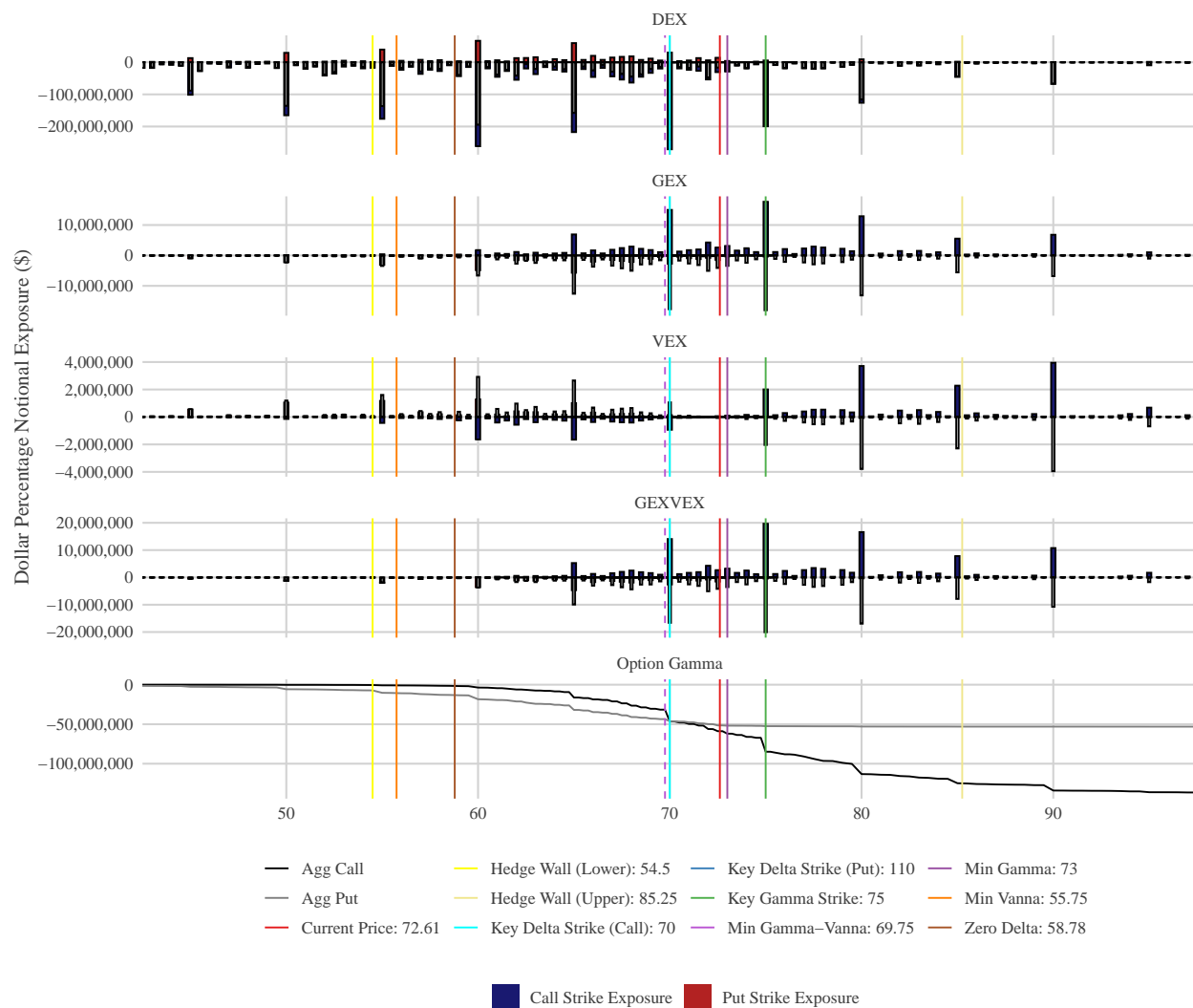
Largest Gamma Strike: 2021-11-16 0.436  
Largest Delta Strike (Put): 2021-10-08 1.85e-05  
Largest Delta Strike (Call): 2021-11-16 0.615  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.0263  
Next Expiration Delta: 0.00243  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17





## Strike Notional Exposure for Crude Oil WTI

Largest Gamma Strike: 2021-11-16 0.436  
Largest Delta Strike (Put): 2021-10-08 1.85e-05  
Largest Delta Strike (Call): 2021-11-16 0.615  
Next Expiration: 2021-09-17  
Next Expiration Gamma: 0.0263  
Next Expiration Delta: 0.00243  
Source: CBOE, COMEX, EUREX, NYMEX, ICE/EU, author's compilation  
Data as of 2021-09-17







## 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.