

A Golden Opportunity: Revisiting Gold Futures and Options

May 25, 2023

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Ask Questions

We encourage you to participate in our discussion today **using the Q&A feature** available via the WebEx app if you are joining virtually.

To submit questions, please follow these steps:

- Click into the Q&A box located on the right side of your screen
- Click the “Ask:” drop down menu
- Select **All Panelists** from the list of panelists
- Type your question and hit send
- **Your question will be anonymous to other event attendees**

Bob Guardi

Manager, Education
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David Gibbs

Director, Education
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CME Group offers the widest range of benchmark futures and options products, covering all major asset classes – and all kinds of risk.



Standardized futures at CME Group

What a futures contract is **AND** what it is not.

Futures contracts are **not** assets. They convey no rights of ownership, nor do they pay or accrue interest.

They are **futures contracts** which, as a contract, provide certain rights and obligations.

The terms of the contract are outlined in its contract specifications, available for viewing on cmegroup.com.

Standardized futures at CME Group

Because a futures contract is not an asset futures contracts do not require full payment of the notional value of the contract at execution.

What futures do require is a performance bond, also referred to as margin.

This is different than securities margin which involves borrowing capital from a broker to buy shares of stock. That is a loan from the broker (up to 50% of the value of the stock purchase) and results in interest expense.

Margins on futures constitute a security bond on the open position to ensure performance of the contract. Usually a fraction of the notional value of the contract.

Standardized futures at CME Group

There are two types of margin at CME Group.

Initial margin: the amount required by CME Clearing to initiate a futures position. While set by CME Clearing a broker may require additional funds over and above CME Clearing initial margin be held on deposit.

Maintenance margin: the minimum amount that must be maintained at any given time in your account per open futures position.

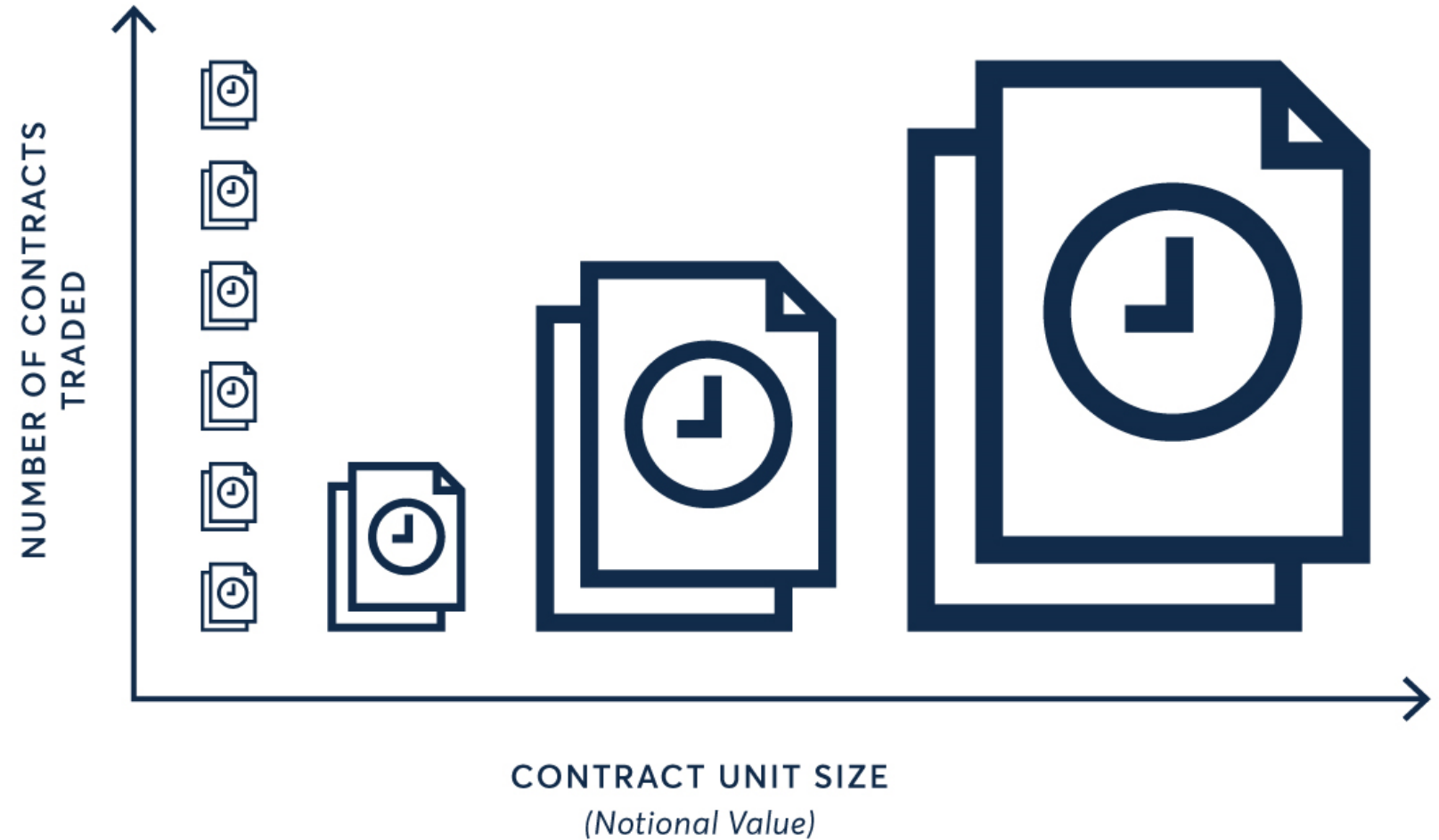
Futures positions are consistently monitored by the Clearing House and marked-to-market twice daily. The variation cash flows based on the M-T-M reduce systemic risk and eliminate loss carry forwards.

The right tool for the right job.

Exchanges may list different sized futures contracts.

In some cases, the contract unit size may determine the type of user.

For example, large unit sized contracts tend to be favored by commercial and institutional risk managers and traders.



FOR EXAMPLE

Metals: Gold

Globex Ticker: GC

Current expiry: June 2023 (symbol M3)

Ticker: GCM3

Price convention: USD per troy ounce (1-contract = 100 ounces)

Example: \$2016.4 per contract

Equity Value = $100 \times \$2016.4 = \$201,640.00$ per contract

MM = \$8,300*

FOR EXAMPLE

Metals: Micro Gold

Globex Ticker: MGC

Current expiry: June 2023 (symbol M3)

Ticker: MGCM3

Price convention: USD per troy ounce (1-contract = 10 ounces)

Example: \$2016.4 per contract

Equity value = $10 \times \$2016.4 = \$20,164.00$ per contract

MM = \$830*

Physical delivery vs. cash settlement

Gold futures are an example of a physically delivered commodity. The short position delivers, according to clearing house procedures, a warrant is received by the long contract position in exchange for payment.

Most commodity, US Treasuries, MAC Swaps, and FX futures contracts are physically delivered.

Physical delivery vs. cash settlement

Equity Index, STIRs, and some FX contracts are not physically delivered but cash settled.

You get the difference in *cash* between the previous day's settlement price and the final settlement price.

Physical Delivery and Market Safeguards

Physical Delivery of Gold Futures

Contract	Gold Futures (GC)
Deliverable Product	100 oz. gold bar; 1 kg bar
Number Required per Contract	1 x 100-oz bar or 3 x 1 kg bar
Weight Tolerance	±5%
Minimum Fineness	995
Brands	Exchange Approved Brands (LBMA brands adoption since 2020)

COMEX Gold Depository Location	Depository
New York	Brink's Inc.
	HSBC Bank USA
	JP Morgan Chase Back NA
	Malca-Amit USA, LLC
	Manfra, Tordella & Brookes, Inc.
	Loomis International (US) Inc.
Delaware	Delaware Depository
	International Depository Services of Delaware

Role of Market Regulation

The Market Regulation Department at CME Group ensures the integrity of the markets and the delivery process

Key Responsibilities

- Approve and inspect facilities for physically settled metal products (and other CME Group products)
- Ensure facilities meet Exchange Rules and remain financially stable
- Publish inventory reports for metals products in Exchange approved facilities
- Issues notices to the market for any changes or new approvals with respect to the facilities
- Approve and monitor deliverable brands for precious metals



Approved Brands

Brands List: <http://www.cmegroup.com/rulebook/files/service-providers.xls>

Gold Brands List: 60+ brands approved for deliveries. Only a partial list of approved brands has been shown here.

Gold (GC) Brands				
Producer	Refined At	Code	Brand Marks	
Engelhard Corporation	Carteret, New Jersey	ENNE	*ENGELHARD (may also be * ENGELHARD NEW JERSEY-U.S.A. or ENGELHARD U.S.A.)	
Engelhard Corporation	Carteret, New Jersey	BAKE	*BAKER (within circle atop triangle)	
Engelhard Corporation	Chessington, England	ENCI	*ENGELHARD LONDON	
Engelhard Corporation	Thomastown, Australia	ENTH	*ENGELHARD AUSTRALIA	
Engelhard Corporation	Aurora, Ontario	ENAU	*ENGELHARD (with circle connected to 1/2 moon to left of name; may also be ENGELHARD INDUSTRIES OF CANADA LTD.)	
Glencore Canada Corporation	Montreal East, Quebec	CCRL	*CANADIAN COPPER REFINERS LIMITED MONTREAL EAST, CANADA (within an oval)	
Glencore Canada Corporation	Montreal East, Quebec	NORA	*NORANDA MINES LIMITED - CCR, MONTREAL EAST, CANADA (within an oval)	
Glencore Canada Corporation	Montreal East, Quebec	NINC	NORANDA MINES Inc. - CCR, MONTREAL EAST, CANADA (within an oval)	
Golden West Refining Corporation Limited, Handy & Harman Refining Group Inc.	Attleboro, Massachusetts	GWHH	*HH HANDY & HARMAN REFINING GROUP	
Handy & Harman	Attleboro, Massachusetts	HAND	*HH HANDY & HARMAN	
Heraeus Deutschland GmbH & Co. KG	Hanau, Germany	HERA	*HERAEUS FEINGOLD (with Heraeus Edelmetalle GmbH-Hanau encircling three roses)	
Heraeus Metals New York LLC	Newark, New Jersey	HERI	HERAEUS FEINGOLD (hand holding three roses encircled with "Heraeus Edelmetalle GmbH Hanau")	
Heraeus Ltd. Hong Kong	Kowloon, Hong Kong	HERH	HERAEUS FEINGOLD (hand holding three roses encircled with "Heraeus Edelmetalle Hanau")	
Homestake Mining Company	Lead, South Dakota	HMCO	*HOMESTAKE MINING COMPANY (with HMC all within circle)	
Istanbul Gold Refinery	Istanbul, Turkey	IGR	IGR (within a circle along with Istanbul Gold Refinery Melter & Assayer)	
Johnson Matthey, Inc.	Winslow, New Jersey	MBUS	*MATTHEY BISHOP U.S.A. (within an oval)	

COMEX Delivery Notices and Stocks

<http://www.cmegroup.com/trading/energy/nymex-delivery-notices.html>

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NYMEX, COMEX Delivery Notices & Stocks

 Share

40

COMEX & NYMEX Delivery Notices

COMEX & NYMEX Metal Delivery Notices

Daily

Monthly

Year-To-Date

Metals Delivery Notices

NYMEX Energy Delivery Notice

Daily

Year-To-Date

Warehouse & Depository Stocks

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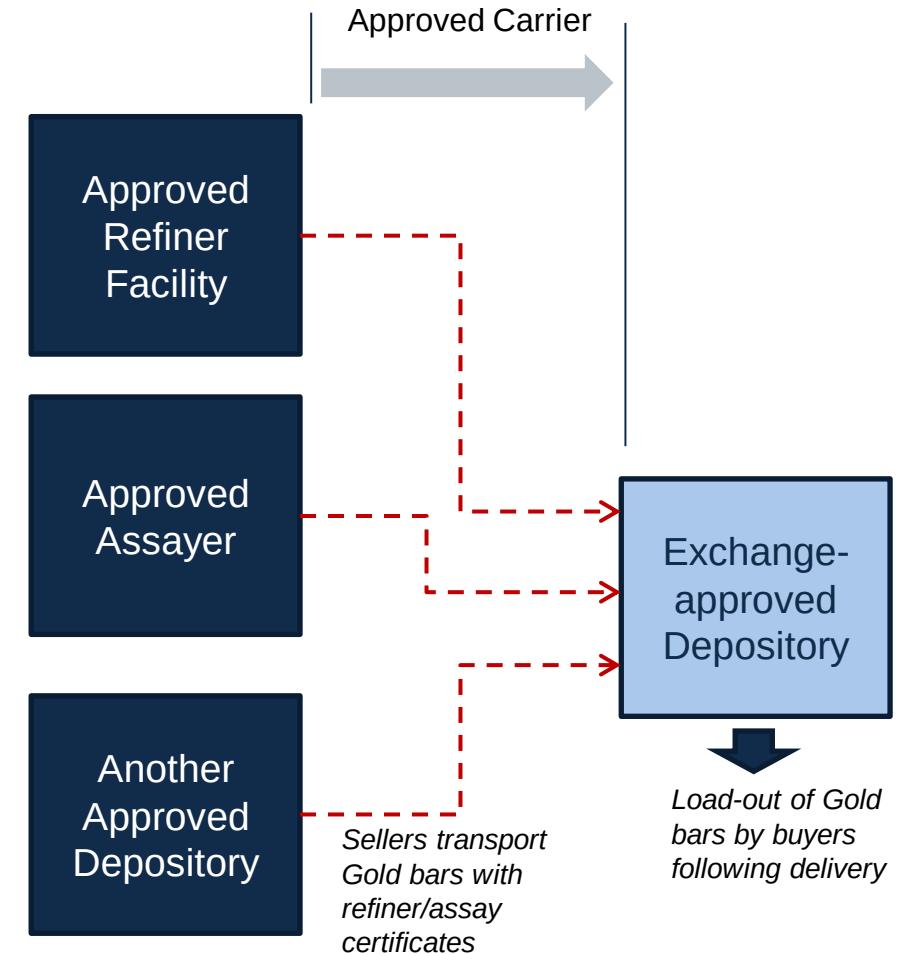
Gold Stocks example – 28th March 2023 (partial report)

							
COMMODITY EXCHANGE, INC.							
METAL DEPOSITORY STATISTICS							
GOLD				Report Date: 3/28/2023			
Troy Ounce				Activity Date: 3/27/2023			
DEPOSITORY	PREV TOTAL	RECEIVED	WITHDRAWN	NET CHANGE	ADJUSTMENT	TOTAL TODAY	
BRINK'S, INC.							
Registered	4,315,914.278	0.000	0.000	0.000	0.000	4,315,914.278	
Pledged	772,995.743					772,995.743	
Eligible	432,763.967	0.000	0.000	0.000	0.000	432,763.967	
Total	4,748,678.245	0.000	0.000	0.000	0.000	4,748,678.245	
BRINK'S, INC.- ENHANCED DELIVERY (400 OZ AND ELIGIBLE BRANDS)							
Registered	0.000	0.000	0.000	0.000	0.000	0.000	
Eligible	108,119.070	0.000	0.000	0.000	0.000	108,119.070	
Total	108,119.070	0.000	0.000	0.000	0.000	108,119.070	
DELAWARE DEPOSITORY							
Registered	18,804.568	0.000	0.000	0.000	0.000	18,804.568	
Pledged	1,087.005					1,087.005	
Eligible	142,530.922	0.000	0.000	0.000	0.000	142,530.922	
Total	161,335.490	0.000	0.000	0.000	0.000	161,335.490	
DELAWARE DEPOSITORY - ENHANCED DELIVERY (400 OZ AND ELIGIBLE BRANDS)							
Registered	0.000	0.000	0.000	0.000	0.000	0.000	
Eligible	0.000	0.000	0.000	0.000	0.000	0.000	
Total	0.000	0.000	0.000	0.000	0.000	0.000	
HSBC BANK, USA							
Registered	1,635,708.992	0.000	0.000	0.000	0.000	1,635,708.992	
Pledged	109,068.836					109,068.836	
Eligible	4,047,535.560	0.000	0.000	0.000	0.000	4,047,535.560	
Total	5,683,244.552	0.000	0.000	0.000	0.000	5,683,244.552	
TOTAL REGISTERED	11,485,851.220	0.000	0.000	0.000	0.000	11,485,851.220	
TOTAL PLEDGED	1,643,341.368					1,643,341.368	
TOTAL ELIGIBLE	9,807,059.375	0.000	0.000	0.000	0.000	9,807,059.375	
COMBINED TOTAL	21,292,910.595	0.000	0.000	0.000	0.000	21,292,910.595	

Chain of Integrity

- **Exchange rules ensure strict control on the delivery process and the chain of integrity.**
- For Gold, the inventory may only be delivered to a COMEX-approved depository using an approved carrier in one of the following ways:
 - Directly from an approved refiner along with the refiner certificates; or
 - Directly from an approved assayer with the assay certificates; or
 - Directly from another COMEX-approved vault.
- Each gold bar is inspected and weighed at the Facility.
- A complete list of approved Carriers and Assayers can be found here <http://www.cmegroup.com/rulebook/files/service-providers.xls>

Approved Carriers for Gold	Garda CL Atlantic, Inc.
	Transvalue, Inc.
	Loomis, Fargo & Co.
	Brinks, Inc.
	G4S International, Inc.
	IBI Amored Services, Inc.
	Malca-Amit Amored, Inc.
	Loomis International (USA) Inc.
Approved Assayers for Gold	SGS Lakefield Research Limited
	ALS Inspection UK Ltd.
	Alfred H. Knight International Ltd.
	Ales Stewart (Assayers) Inc.
	Ledoux & Company
	Alfred H. Knight North America Ltd.
	AS International Corporation Ltd.



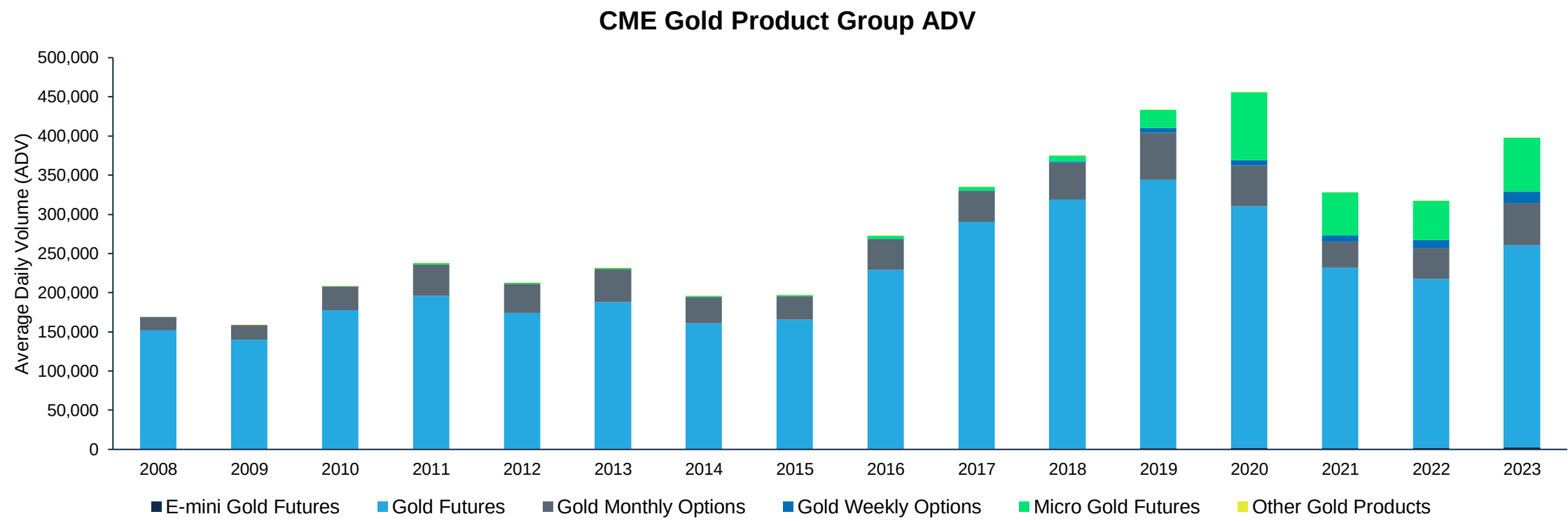
COMEX Metals Safeguards

Along with being regulated by the CFTC, CME Group has multiple measures in place to help maintain orderly markets, including:

- Continuous monitoring of market conditions and proactive communication with clients in times of market stress.
- Clearly **defined Dynamic Circuit Breakers** prevent the market from moving too far, too fast. Impacted contracts transition into a two-minute pre-open state upon being triggered. In COMEX & NYMEX Metals, DCBs upper and lower limit is a 10% move within 1 hour. More information can be found through our FAQ Document and Wiki page. Dynamic Circuit Breakers that monitor for significant price movements during a trading session.
- COMEX & NYMEX Metals spot month position limits are also protect against market squeezes. They are set basis the deliverable supply of the total inventory of metal available in COMEX & NYMEX approved facilitates and are monitored closely by both the Market Regulation division and the CFTC. More information can be found through the CFTC and our position limit documents.
- Another integral part of the risk management function is margin. Each day, and twice daily for futures and options, CME Clearing marks all positions to market and calls clearing members for both settlement variation and initial margin via its regular settlement cycle.
- Additionally, our Clearing House has the ability to assess additional margin for large positions in any market to mitigate concentration risk while our Market Regulation Team carefully manages position limits for all participants in our market to ensure the safety and soundness of our markets. Our detailed position limits rules are all very well understood by our market participants and described in detail on our website.

CME Gold Product Suite

CME's Gold Products Expansion in the Last Decade



Data source: CME Group

COMEX Gold (GC)

- Benchmark for Gold price and world’s most liquid gold derivative contract.
- Provides transparent form of price discovery in the Gold market
- Offers unparalleled market access and 23 hour/day liquidity
- In 2022, \$39 billion* worth of COMEX Gold traded daily

Key Contract Specifications	
Contract Unit	100 troy ounces
Price Quotation	U.S. dollars and cents per troy ounce
Tick Size	0.10 per troy ounce / \$10.00 per tick
Settlement	Deliverable
Contract Listing	Out to ~6 years maturity
Full Specs	Link

**assuming Gold price of \$1,800 USD/oz.*

COMEX Gold (GC) – Price Discovery with Central Limit Order Book

Outrights and calendar spreads are available to trade

X	CC	Product	Description	Status	+	Qty	Bid	Ofr	Qty	Pin	Last	Change	High	Low	Open	Volume	Open Interest
+ GC   																	
x	GC	Gold Future	Apr23	Open	 	8	1,998.2	1,998.4	9	☐	 1,998.3	+2.4	2,006.5	1,983.7	1,996.1	207,769	132,194
						10	1,998.1	1,998.5	12								
						9	1,998.0	1,998.6	8								
						10	1,997.9	1,998.7	11								
						10	1,997.8	1,998.8	10								
x	GC	Gold Future	May23	Open	 	10	2,006.4	2,006.6	1	☐	 2,005.9	+1.8	2,013.2	1,994.0	2,004.1	780	1,006
						15	2,006.3	2,006.7	7								
						1	2,000.0	2,013.8	1								
						2	1,980.0	2,015.0	1								
						1	1,971.5	2,018.0	1								
x	GC	Gold Future	Jun23	Open	 	1	2,015.8	2,015.9	1	☐	 2,015.5	+2.2	2,023.9	2,001.1	2,013.3	86,506	294,970
						15	2,015.7	2,016.0	9								
						14	2,015.6	2,016.1	12								
						2	2,015.5	2,016.2	3								
						3	2,015.4	2,016.3	2								
x	GC	Gold Future	Aug23	Open	 	10	2,032.6	2,032.8	1	☐	 2,031.2	+0.8	2,040.0	2,019.0	2,030.5	1,542	22,750
						6	2,032.5	2,032.9	9								
						1	2,031.2	2,034.0	1								
						1	2,030.8	2,034.4	1								
						1	2,030.4	2,034.8	1								
x	GC	Gold Future	Oct23	Open		1	2,048.2	2,048.5	4	☐	 2,048.2	+1.5	2,048.5	2,038.0	2,046.9	481	8,051
x	GC	Gold Future	Dec23	Open		2	2,063.3	2,063.6	2	☐	 2,062.8	0.0	2,068.0	2,049.6	2,059.6	1,315	17,460
x	GC	Gold Future	Apr23/Jun23	Open		967	-17.7	-17.6	2,523	☐	 -17.6	-0.2	-17.2	-17.9	-17.3	63,264	
x	GC	Gold Future	Apr23/Aug23	Open		26	-34.6	-34.5	9	☐	 -34.5	0.0	-34.2	-34.8	-34.7	703	
x	GC	Gold Future	Apr23/Oct23	Open		4	-50.2	-50.1	1	☐	 -50.1	+0.7	-48.1	-50.7	-50.7	144	
x	GC	Gold Future	Apr23/Dec23	Open		1	-65.3	-65.2	1	☐	 -65.4	+1.5	-62.5	-67.1	-66.6	849	

Data source: CME Group. 24th Mar 2023

Some additional considerations...

Many traders follow a futures contract's average daily volume (ADV) to determine how liquid and deep the product market is.

Open interest is another futures term to be aware of.

Volume measures trading activity over a trading session.

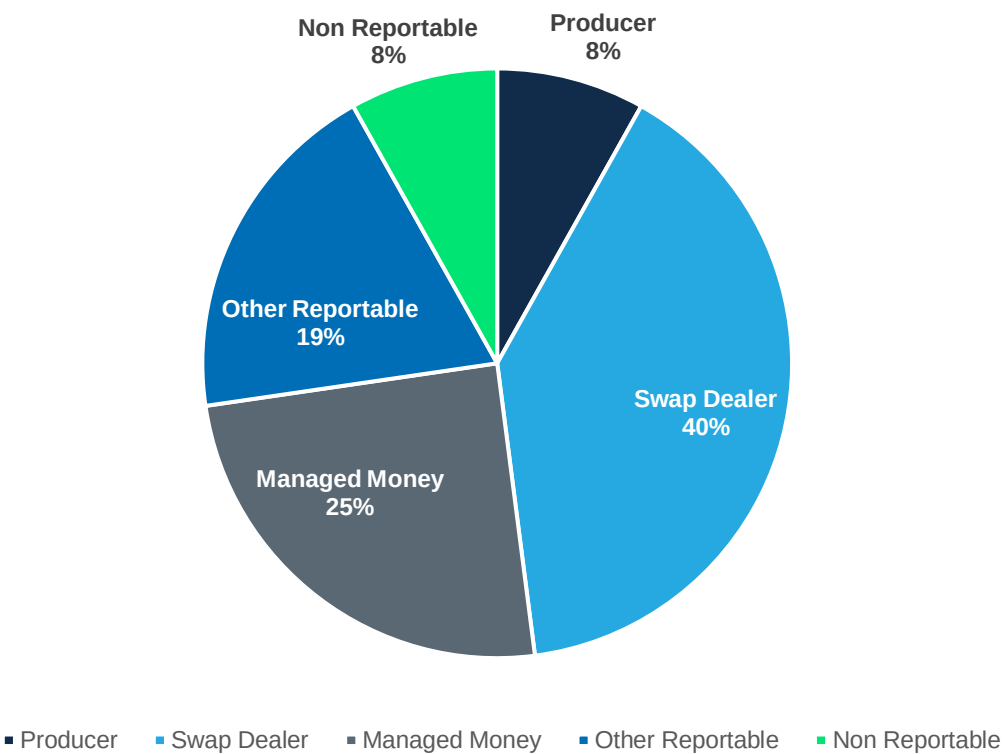
Open interest measures how many contracts have been opened but not yet closed out. Futures contracts have expiration dates. A contract can only be closed one of three ways:

1. Offset by an opposing opposite transaction
2. Rolled forward to another, further dated contract month
3. Final settlement at expiration (physical or cash)

COMEX Gold (GC) – A Truly Diverse Marketplace

Balanced Open Interest between different customer segments

CFTC Commitment of Traders Report on CME Gold Futures Open Interest



Data source: CME Group, CFTC. Data shows COT report 21 March 2023

Commodity futures prices: Gold – April 20, 2023

Basis is the price difference a commodity futures price and its underlying spot physical price.

Example: Spot gold on April 20 = \$2007.20, and GCM3 futures = \$2016.4

Basis = Futures price – spot price

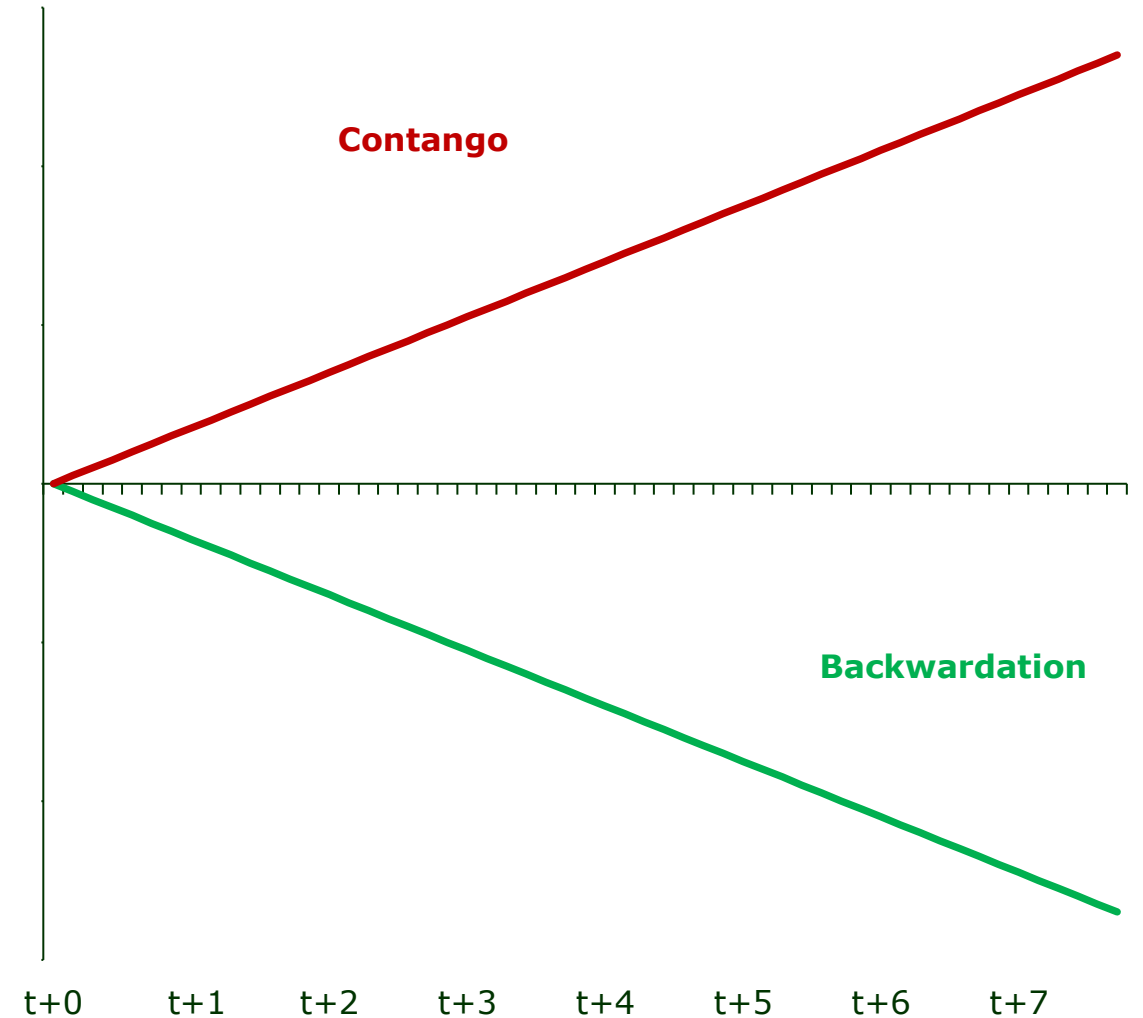
Basis = 2016.4 – 2007.20 = 9.2, **futures pricing at a premium to spot.**

Sources: Spot price from metalsdaily.com; futures data from CME Group

Commodity futures prices: contango & backwardation

If a futures contract forward price curve is higher over time it is said to be in **contango**.

If a futures contract forward price curve is lower over time it is said to be in **backwardation**.



Commodity futures prices: contango & backwardation

Month	Settlement	Volume	Open Interest
APR 23	1995.2	61	527
MAY 23	1998.0	924	1,757
JUN 23	2007.3	218,808	402,529
AUG 23	2025.9	7,306	36,570
OCT 23	2044.3	663	9,676
DEC 23...	2062.3	1,104	25,739
...DEC 28	2323.3	0	0
Total		229,807	482,254

Source: CME Group, settlement data, 19 April 2023

Gold futures prices: time value of money

Gold futures prices reflect, or have embedded, in their pricing, the time value of a risk-free interest rate.

They also may have other price input variables like transportation and storage cost.

A simple calculation to see if futures are relatively fair priced is to account for the equivalent risk-free interest rate versus the time to expiration of the futures contract.

Example: GCM3 has 38 days until expiration, a RFR (1-month) is 4.96%, spot gold = 2008.0

$P_{\text{futures}} = \{[P_{\text{spot}} \times 100 \text{ (troy ounces)} \times \text{RFR} \times (\text{days} / 360)] / 100\} + P_{\text{spot}}$

$P_{\text{futures}} = ((200,800 \times 0.0496 \times 0.1056) / 100) + 2008.0 = \mathbf{2018.5}$ versus last quote GCM3 = **2019.0**

Sources: Spot price from metalsdaily.com; futures data from CME Group

CME – Home to the Largest Precious Metals Product Complex

- Benchmark Physical Futures and Options on all four precious metals: Gold, Silver, Platinum, Palladium

Benchmark Futures	Launch Year	Product Code	Listed Exchange	2023 Average Daily Volume in USD *	Open Interest in USD *
Gold Futures (100oz)	1974	GC	COMEX	\$51 Billion	\$94 Billion
Silver Futures (5000oz)	1933	SI	COMEX	\$9 Billion	\$14 Billion
Platinum Futures (50oz)	1990	PL	NYMEX	\$1 Billion	\$3 Billion
Palladium Futures (100oz)	1968	PA	NYMEX	\$0.5 Billion	\$2 Billion

- In addition to benchmark contracts, smaller sized contracts, short dated options and regional basis contracts have been launched in the recent years, to offer the market additional tools to manage risks.
 - Micro Gold Futures (10oz), Micro Silver Futures (1000oz), Micro Platinum Futures (10oz), Micro Palladium Futures (10oz)
 - E-Mini Gold Futures (50oz), E-Mini Silver Futures (2500oz)
 - Weekly Gold and Silver Options with Monday, Wednesday, Friday expirations
 - Shanghai Gold Futures in CNH and USD

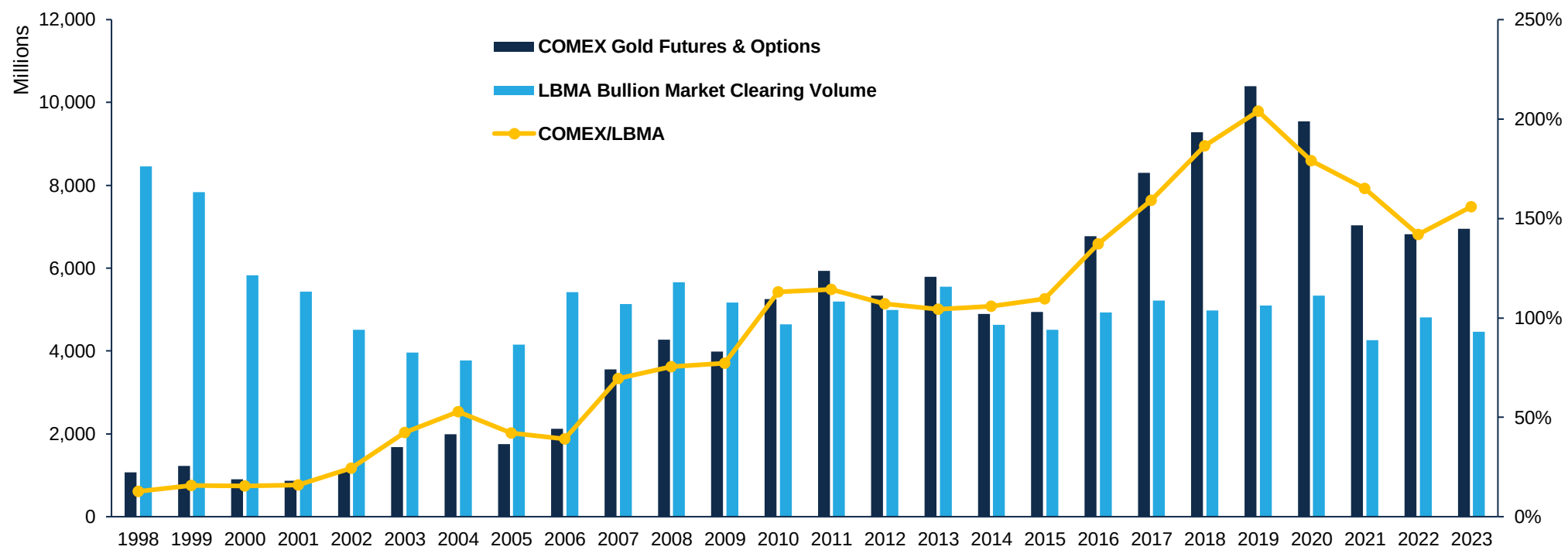
Data source: CME Group.

** Notional USD value is based on data as of 29th March 2023.*

Global Gold Market Landscape

- CME has the world’s largest central liquidity pool for gold price discovery and derivatives trading.
- CME is the primary hedging market for physical participants from regional trading centres like the London OTC market.
- CME gold futures and options are widely used to manage risks or seek gold price exposures.

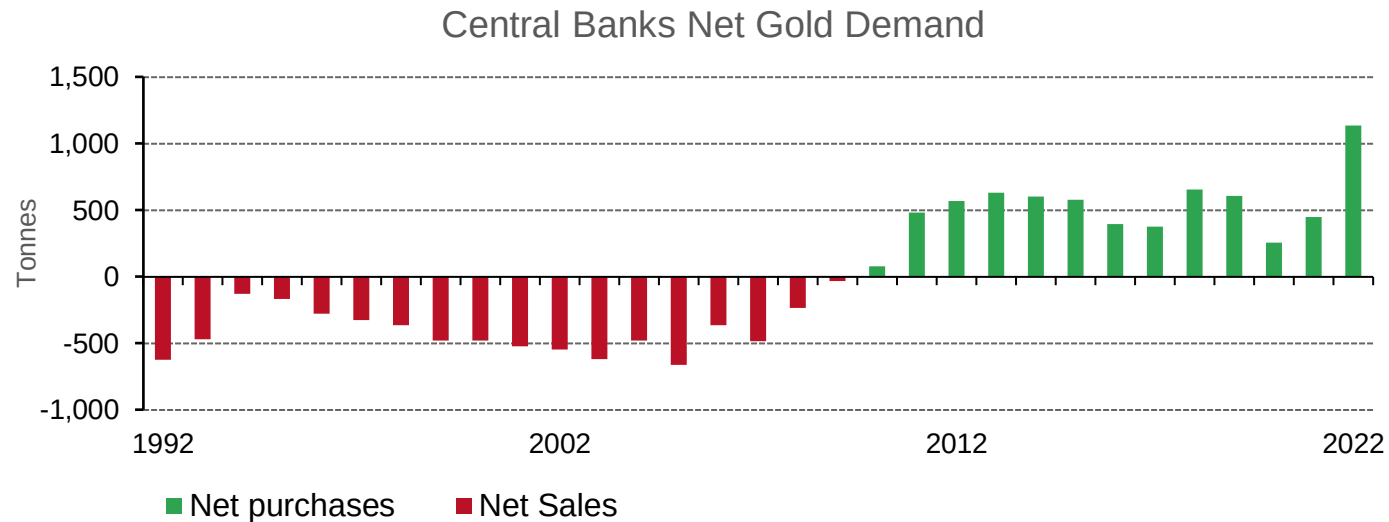
Total Volume (million ounces). 2023 figures - CME and LBMA data through February and annualized



Data Source: CME Group, LBMA

Central Banks' Gold Purchase at Fastest Pace in 2022

- In 2022, central banks bought gold at the fastest pace since 1967, amid high inflation and geopolitical uncertainty.
- Gold plays an important role in the financial reserves of numerous nations, with central banks buying it to try and boost economic stability.
- Central Banks use gold to balance foreign exchange reserves, hedge against fiat currencies, diversify their portfolios, as gold prices tend to rise when the US dollar falls in value.



Data source: Metals Focus, Refinitiv GFMS, World Gold Council

Metals Options

Metal Options

<https://www.cmegroup.com/newsletters/metals-options-update.html>

CME Group lists options on base, precious, and ferrous metals products.

Some products offer both monthly and short-term expiries.

Due to the physical delivery mechanism in most metals futures contracts the option expiry dates won't necessarily line up with a similarly labeled futures contract.

Most metals options are American style.

Average Price Options on HRC steel are European style.

Precious Metal Options

Gold (OG), American style options listed **monthly**: each nearest 20 consecutive futures (GC) months, plus June and December months out 72 months.

OG Monthly options trading terminates at 12:30 p.m. CT on the 4th last business day of the month prior to the contract month. If the 4th business day occurs on a Friday or the day before a holiday, trading terminates on the prior business day.

Example:

JUN 2023 (OGM3) expires 25 May 2023.

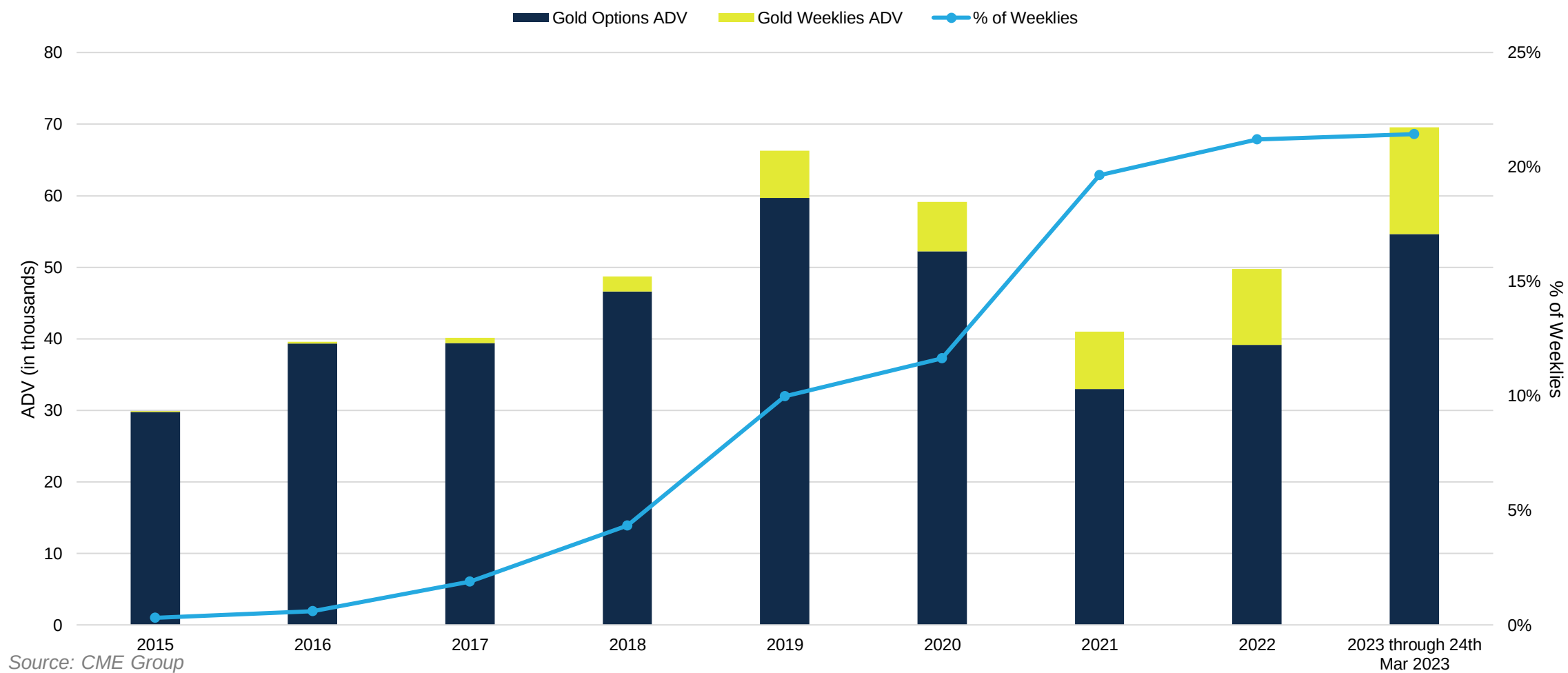
Additionally...

Gold, American style **Weekly** options (Mondays, Wednesdays, Fridays) listed for 4 consecutive weeks. No weekly contract listed with the same expiry day as a monthly option.

<https://www.cmegroup.com/markets/metals/precious/gold.calendar.options.html#optionProductId=192>

Gold Options – CME Group’s Largest Metal Options Product

Tight Liquidity and Complete Transparency



Gold Options – CME Group’s Largest Metal Options Product

Tight Screen Markets 23 Hours Each Day

Open Int	Volume	Last	Vol	Δ	QS	+	C Qty	BidIV	C Bid	Theo	C Ofr	OfrIV	C Qty	Strike	P Qty	BidIV	P Bid	Theo	P Ofr	OfrIV	P Qty	+	QS	Δ	Vol	Last	Volume	Open...		
- OGN2 27 Jun 2022 (0.34 DTE) Gold Option; GCQ2: 1,839.2														ATM	1840.0 ▼ ▲										10 strikes - +					
Gold Future Aug22														6	1,839.2	1,839.4		5	+	↓ 1,839.2				42,589	408,736					
408	1	17.1	9.99%	1.00	QS	+	2	23.85%	19.7	19.3	20.2	29.08%	2	1820.0	25	24.75%	0.5	0.0	0.7	26.97%	42	+	QS	0.00	9.99%	↓	0.6	59	1,028	
1,343	34	↓	13.1	9.63%	1.00	QS	+	1	22.68%	15.2	14.3	15.6	26.55%	1	1825.0	97	22.59%	0.8	0.0	1.1	25.01%	37	+	QS	0.00	9.63%	↑	3.2	18	1,775
464	24	↓	12.1	9.42%	0.95	QS	+	2	20.91%	10.7	9.4	11.3	24.45%	3	1830.0	37	21.50%	1.5	0.1	1.7	22.69%	10	+	QS	-0.04	9.42%	↓	1.8	79	591
201	80	↑	7.5	9.36%	0.79	QS	+	2	20.35%	7.0	4.9	7.5	22.75%	1	1835.0	43	20.35%	2.7	0.6	3.1	22.27%	24	+	QS	-0.20	9.36%	↑	2.4	58	241
641	244	↓	4.2	9.47%	0.45	QS	+	12	20.38%	4.2	1.8	4.6	22.18%	32	1840.0	36	19.93%	4.8	2.5	5.3	22.18%	62	+	QS	-0.55	9.47%	↓	4.5	47	783
312	107	↑	2.9	9.74%	0.15	QS	+	33	20.61%	2.3	0.4	2.6	22.11%	5	1845.0	1	20.11%	7.9	6.1	8.5	23.11%	13	+	QS	-0.85	9.74%				496
1,956	162	↓	1.8	10.15%	0.03	QS	+	80	21.26%	1.2	0.1	1.5	23.21%	21	1850.0	1	20.62%	11.8	10.7	12.3	24.47%	1	+	QS	-0.95	10.15%	↓	13.6	105	2,513
459	78	↓	1.0	10.70%	0.00	QS	+	95	22.04%	0.6	0.0	0.9	24.78%	131	1855.0	1	21.18%	16.2	15.7	16.7	25.70%	2	+	QS	-1.00	10.70%		16.8	1	297
1,636	33	↑	0.5	11.38%	0.00	QS	+	125	23.02%	0.3	0.0	0.5	25.81%	19	1860.0	2	20.47%	20.8	20.7	21.4	28.32%	2	+	QS	-1.00	11.38%			1	692
1,152	6	↓	0.2	12.14%	0.00	QS	+	178	22.54%	0.1	0.0	0.4	28.98%	181	1865.0	1		21.5	25.7	29.5	56.81%	1	+	QS	-1.00	12.14%				675

Open Int	Volume	Last	Vol	Δ	QS	+	C Qty	BidIV	C Bid	Theo	C Ofr	OfrIV	C Qty	Strike	P Qty	BidIV	P Bid	Theo	P Ofr	OfrIV	P Qty	+	QS	Δ	Vol	Last	Volume	Open...
– OGN1N2 1 Jul 2022 (4.34 DTE) Gold Fri Week1 Opt; GCQ2: 1,840.4														ATM	1840.0 ▼ ▲										10 strikes – +			
Gold Future Aug22														4	1,840.3	1,840.4	1	+	↑ 1,840.4				42,508	408,736				
29			14.25%	0.76	QS	+	1	16.91%	26.0	24.3	26.5	17.66%	1	1820.0	56	16.97%	5.7	4.0	6.1	17.57%	50	+	QS	-0.23	14.25%			92
603	2	↑ 20.8	14.12%	0.71	QS	+	1	16.62%	22.3	20.5	22.8	17.31%	1	1825.0	42	16.68%	7.0	5.2	7.4	17.23%	21	+	QS	-0.29	14.12%	↓ 8.6	9	766
184	84	↓ 14.3	14.03%	0.65	QS	+	1	16.40%	18.9	17.1	19.4	17.06%	2	1830.0	32	16.46%	8.6	6.8	9.0	16.98%	20	+	QS	-0.35	14.03%	↓ 8.7	14	80
31	62	↓ 15.6	13.97%	0.58	QS	+	17	16.21%	15.8	14.0	16.3	16.85%	23	1835.0	12	16.27%	10.5	8.7	10.9	16.78%	20	+	QS	-0.42	13.97%	↓ 13.8	24	73
115	53	↓ 11.6	13.96%	0.51	QS	+	26	16.03%	13.0	11.3	13.5	16.66%	45	1840.0	12	16.09%	12.7	11.0	13.1	16.59%	26	+	QS	-0.49	13.96%	↓ 13.5	12	59
212	14	↑ 10.6	13.98%	0.44	QS	+	32	15.97%	10.6	9.0	11.0	16.47%	43	1845.0	12	15.91%	15.2	13.7	15.6	16.41%	6	+	QS	-0.56	13.98%			45
360	13	↑ 9.0	14.03%	0.37	QS	+	31	15.89%	8.5	7.1	8.9	16.41%	49	1850.0	2	15.70%	18.0	16.7	18.5	16.35%	1	+	QS	-0.63	14.03%		6	28
46	4	↑ 7.0	14.13%	0.31	QS	+	7	15.95%	6.8	5.5	7.1	16.36%	47	1855.0	2	15.62%	21.2	20.1	21.7	16.31%	1	+	QS	-0.69	14.13%			12
255	10	↓ 5.5	14.26%	0.25	QS	+	48	15.91%	5.3	4.2	5.6	16.35%	15	1860.0	1	15.70%	24.8	23.9	25.3	16.45%	1	+	QS	-0.75	14.26%			20
278	21	↓ 3.0	14.42%	0.20	QS	+	9	16.09%	4.2	3.2	4.5	16.58%	53	1865.0	2	15.71%	28.6	27.9	29.1	16.53%	1	+	QS	-0.80	14.42%			1

Example #1: Futures hedge

February 1, 2023:

Refiner needs to hedge a one-off sale of 2,000 oz. gold to client based on forward delivery date of February 28. Risk to refiner is a lower price at time of delivery versus payment.

February 1:

Spot price gold = 1914.51

Near by futures GCH3 = 1934.3

Hedge ratio (HR) = Risk ÷ Contract size

HR = 2000 / 100 = 20 GCH3 sell to hedge risk

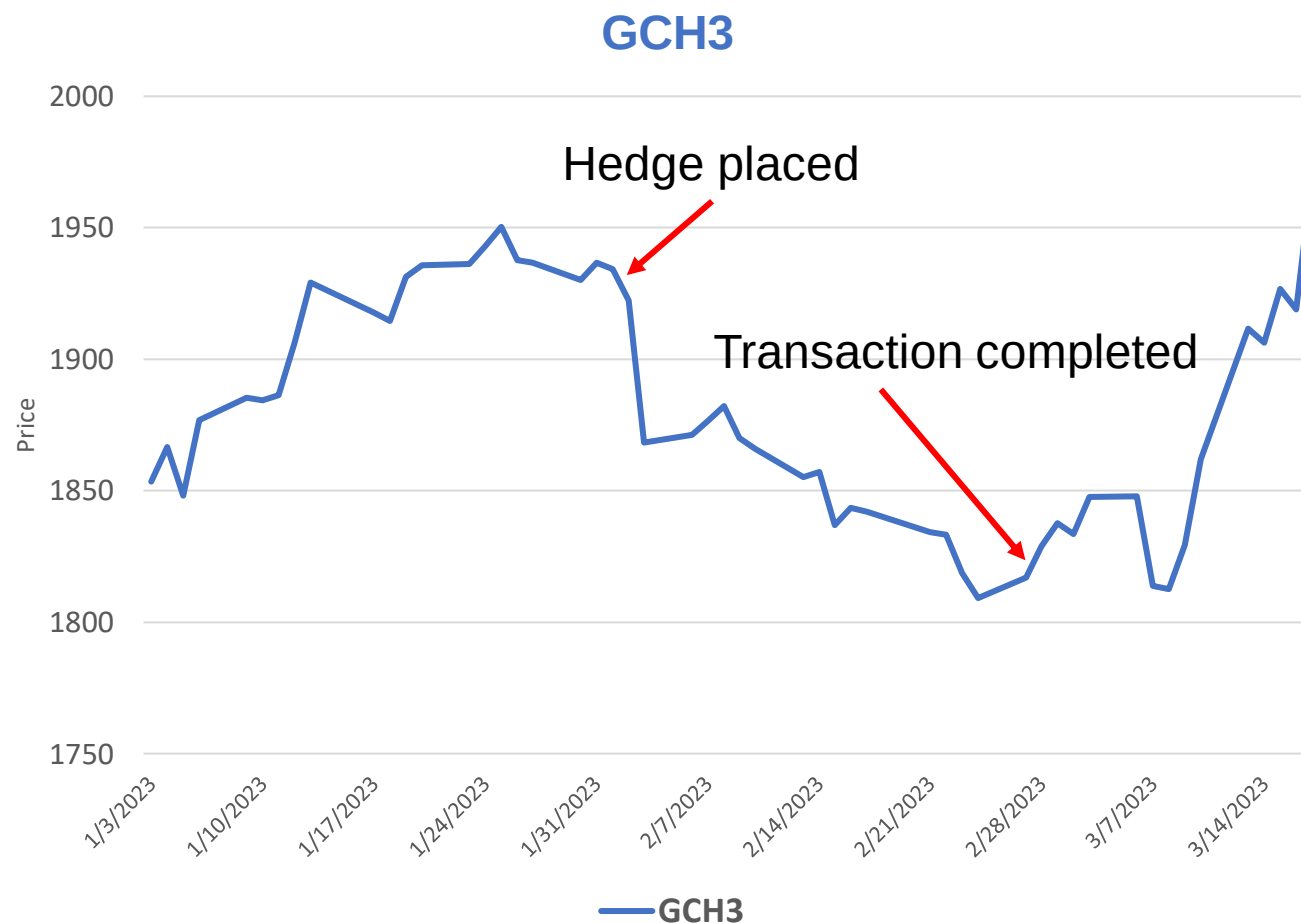
IM ~ \$9,200 per contract = \$184,000 in margin

Example #1: Futures hedge

Between Feb 1 and Feb 28 the price of gold (spot) fell from 1914.51 to 1836.53, or \$77.98 per oz resulting in a potential loss of \$155,960.

The futures overlay generated a gain of 105.4 points x 20 x \$100 = \$210,800

Refiner completes transaction with a \$54,840 gain.



Data source: Bloomberg

Example #2: Options hedge

May 1, 2023:

A gold producer has agreed to sell 10,000 oz in July based on prevailing August 2023 COMEX gold price.

Spot price = 1984.10, and GCQ3 = 2009.9.

OGQ3 options expire 26 July, OGQ3 2010 put delta -48

Equivalent GCQ3 risk = $10,000 / 100 = 100$ GCQ3

OGQ3 HR = futures / delta = $100 / -.48 = -208$, or

Buy 208 OGQ3 2010 puts at 59.6 premium

$208 \times \$100 \times 59.6 = \$1,239,680$ total premium for hedge

Long option position requires full payment but no additional margin.

Example #2: Options hedge

Breakeven for the hedge is the strike price – premium = $2010 - 59.6 = 1950.40$ in GCQ3 price.

Losses from a price break below 1950 will be increasingly offset by increased value in the long put position.

OGQ3 2010 P

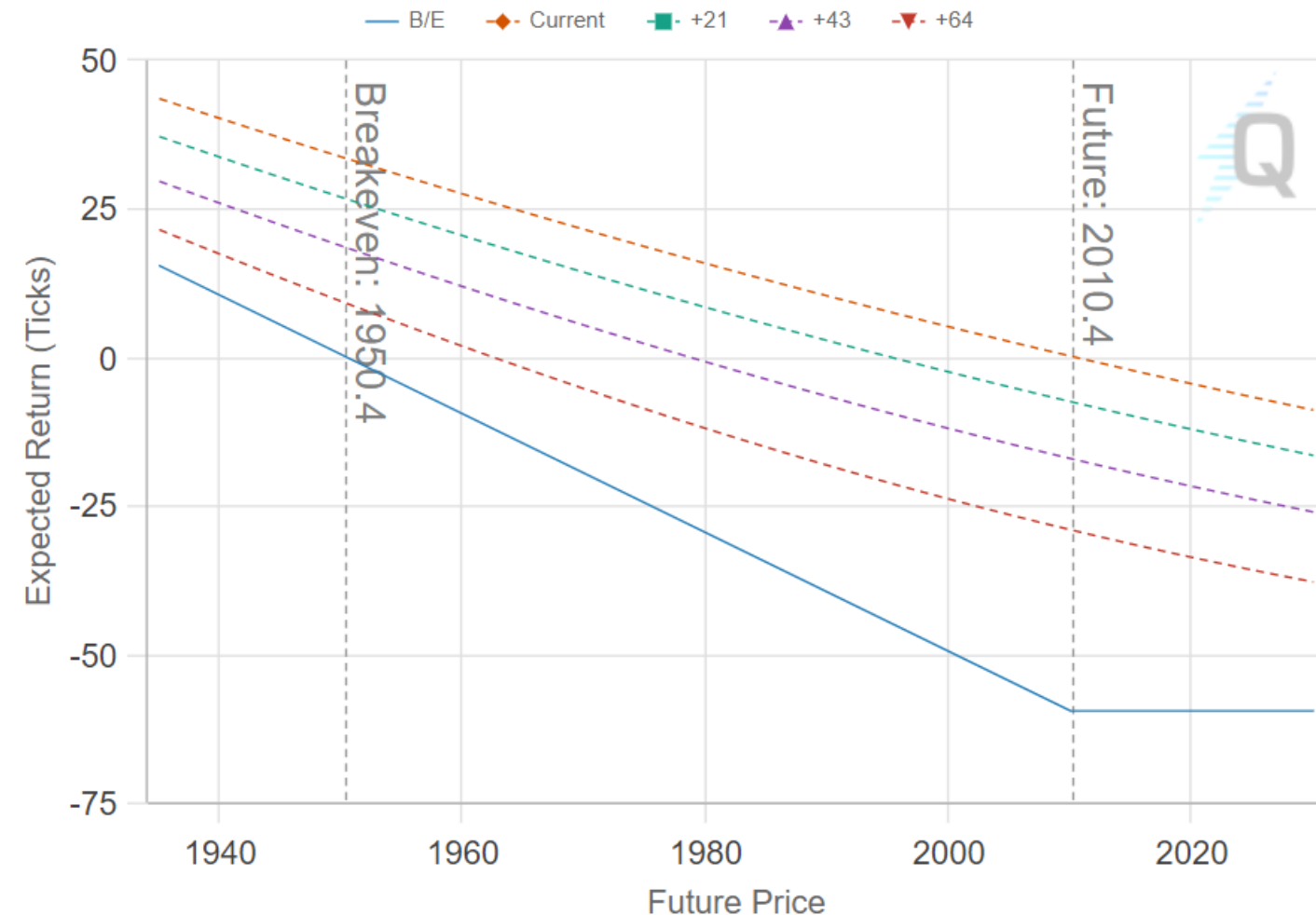


Image source: QuikStrike, for illustrative purpose only

Example #3: Options Butterfly

March 22, 2023:

GCK3 ~ 1980.0, near recent highs

OG CVOL ~ 18.5, near end high end of range

Skew Ratio 1.25 near high end

A trader viewing these inputs decides market will settle down and range trade in the near-term. Using May expiration (34 dte) he buys a Put Butterfly spread.

How does he do this?

+5 OGK3 1930 Puts = 14.2

-10 OGK3 1980 Puts = 33.1

+5 OGK3 2030 Puts = 62.7

Total debit = $(14.2 + 62.7) - (2 \times 33.1) = 10.7$ net

$10.7 \times 100 \times 5 = \$5,350$ debit and maximum risk

Example #3: Put Butterfly

Trade objective is to capture falling volatility and rapidly eroding time decay.

Maximum risk is the premium outlay.

Maximum return = strike spread minus premium paid.

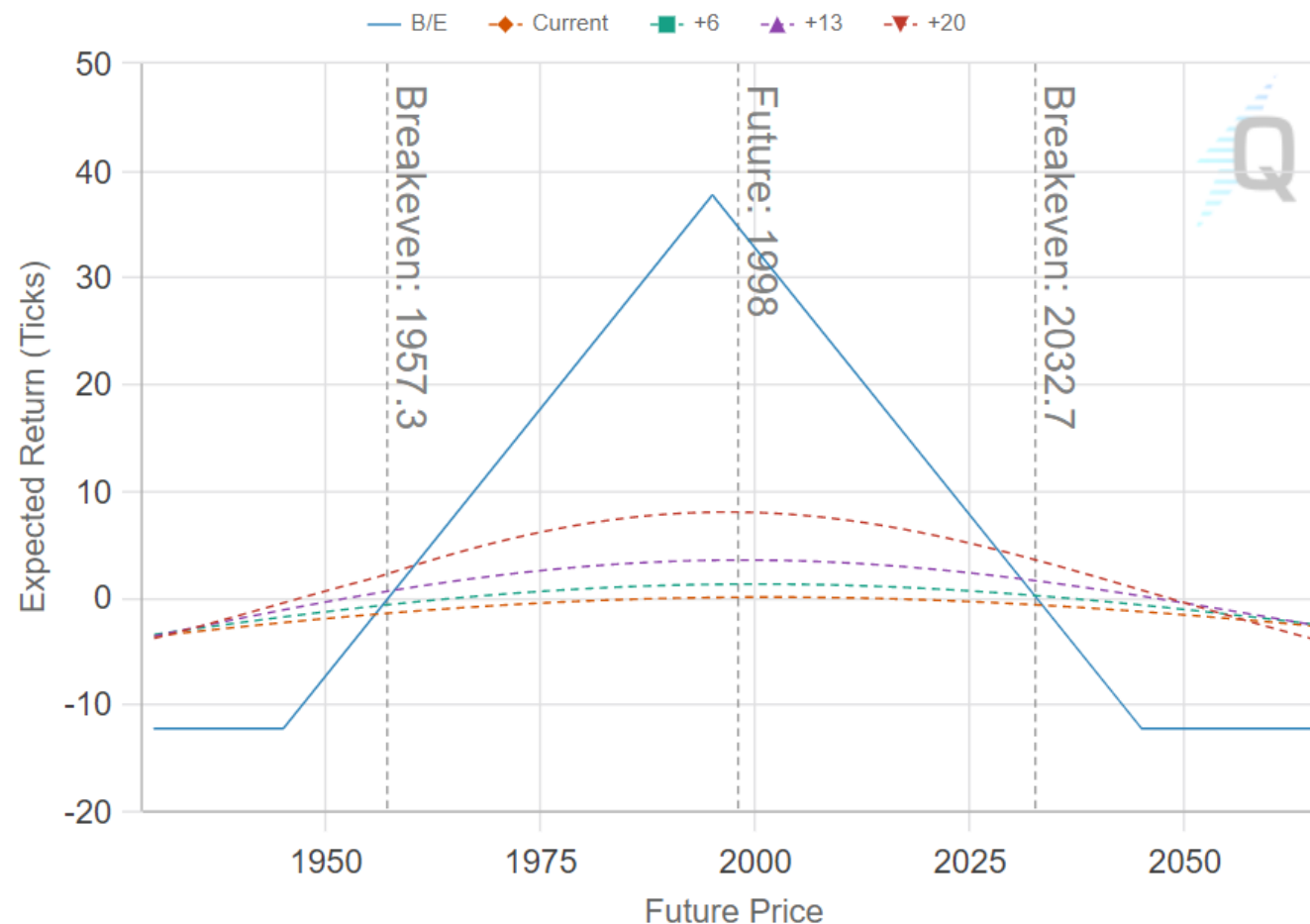


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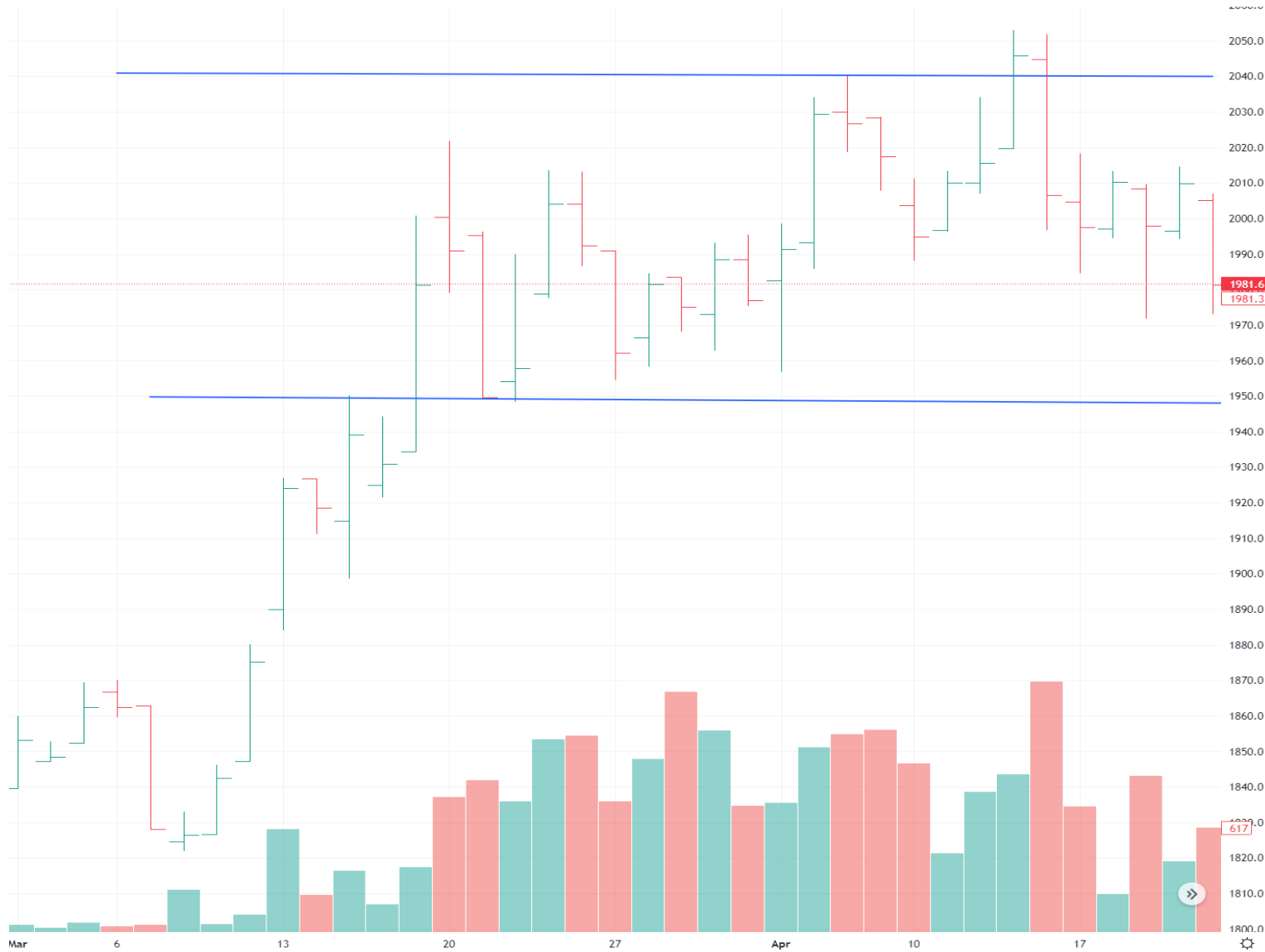


Chart: CMEGroup.com

Example #3: Put Butterfly

GCK3 range bound most of April 2023.

CVOL averaged 17.50 over this period.

Trader covers on April 21.

-5 OGK3 1930 Puts = 0.40

+10 OGK3 1980 Puts = 5.60

-5 OGK3 2030 Puts = 40.50

29.7 net credit, or \$14,850.

Example #3: Put Butterfly

April 21 offset.

Bought 5 May 1930 -1980-2030 Put butterfly for 10.7 debit, or $5 \times 100 \times 10.7 = \$5,350$
Because this represents the maximum potential loss no additional margin required.

Sold 5 May 1930 -1980-2030 Put butterfly for 29.7 credit, or $5 \times 100 \times 29.7 = \$14,850$

$14,850 - 5,350 = \$9,500$ profit on risk capital.

Ask Questions

We encourage you to participate in our discussion today **using the Q&A feature** available via the WebEx app.

To submit questions, please follow these steps:

- Click into the Q&A box located on the right side of your screen
- Click the “Ask:” drop down menu
- Select **All Panelists** from the list of panelists
- Type your question and hit send
- **Your question will be anonymous to other event attendees**

Thank you

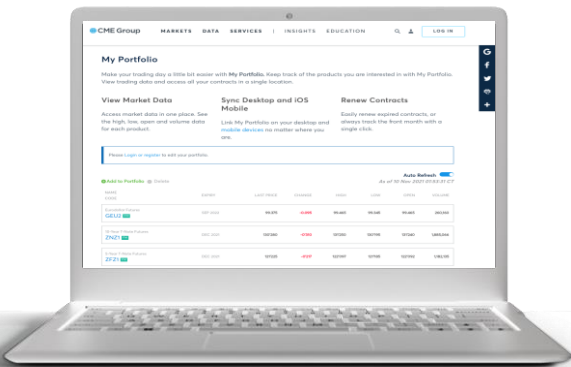
Please let us know your questions, comments and opinions.

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