



March 8, 2023

# CME Group

## S&P vs Nasdaq vs Russell in 2023: Getting More Selective With Your US Stock Index Strategy

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**GFM**  
ASSET MANAGEMENT

# S&P, Nasdaq, Russell in 2023

Value vs Growth and Large vs Small with Futures & Options

by **Tariq Dennison**

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Image credit: MS Office Stock Photo

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## About Tariq Dennison TEP

- Independent Advisor Managing Accounts on the IBKR platform
  - US Advisor: GFM Asset Management LLC
  - HK Advisor: GFM Group Limited
- In the market since 1998
  - Commerzbank (NY, London, Frankfurt)
  - Bear Stearns (NY)
  - J.P. Morgan (NY)
  - Canadian Imperial Bank of Commerce
  - Societe Generale (HK)
- Masters in Financial Engineering
  - University of California at Berkeley
- Lecturer at ESSEC Singapore
  - Fixed Income
  - Alternative Assets
- Balances America, Asia & Europe
- Author “Invest Outside the Box”



## S&P vs Nasdaq vs Russell

- Why they matter
- How they've moved
- What's in them
  - Overlaps
  - Differences
- Some key numbers
- Futures & options vs other ways of trading these benchmarks

## Futures & Options Strategies

- How Futures Work
- Futures vs ETFs
- Futures spreads
- Simple puts and calls
- Option spreads

Options involve risk and are not suitable for all investors. Multiple leg strategies, including spreads, will incur multiple transaction costs.

# Why these benchmarks matter

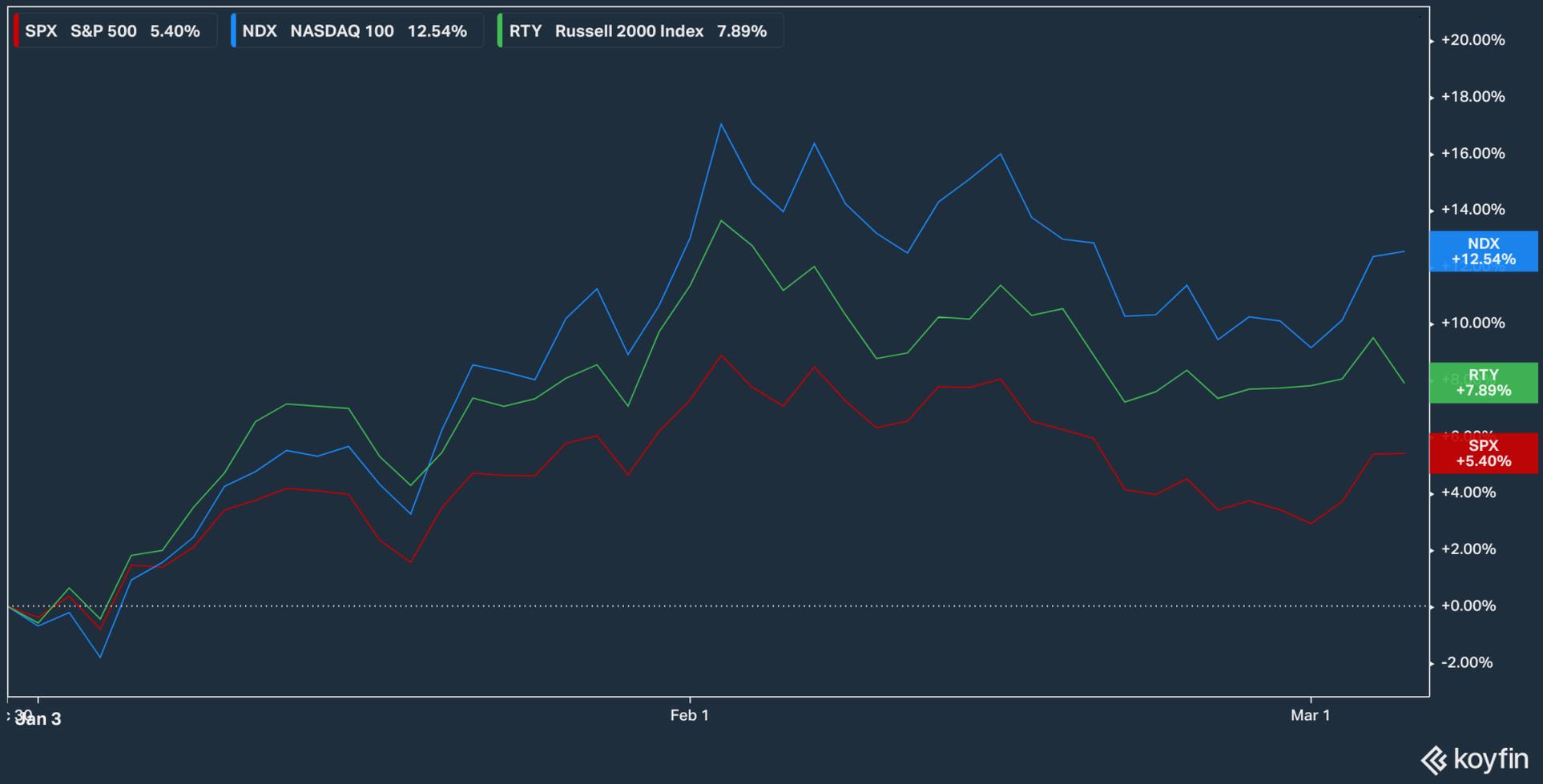
- S&P 500 is by far the most liquid stock market benchmark in the world, with its components making up around 50% of global market cap<sup>1</sup>.
- Nasdaq 100 is a liquid subset of Nasdaq composite, which tends to be used as a proxy for the “high growth” half of the S&P 500.
- Russell 2000 is the most widely used proxy for US small-cap stocks – the smallest 2000 in the Russell 3000.

<sup>1</sup> Source: Holdings of S&P 500 Index funds crossed against total world stock market funds

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# How these benchmarks have moved over time

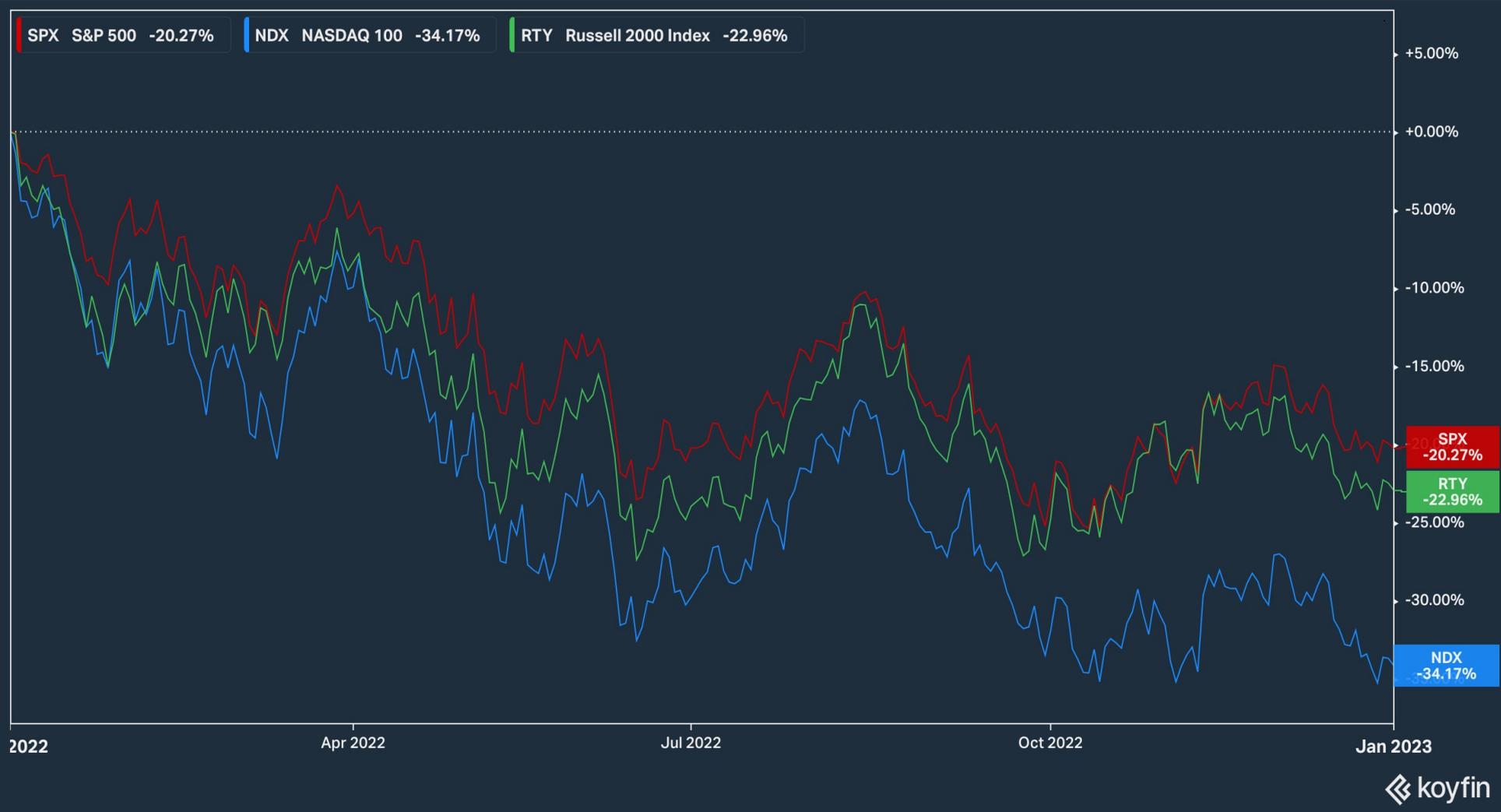
# Year to date in 2023:



Source: Koyfin, 6 March 2023

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# After this move in 2022:

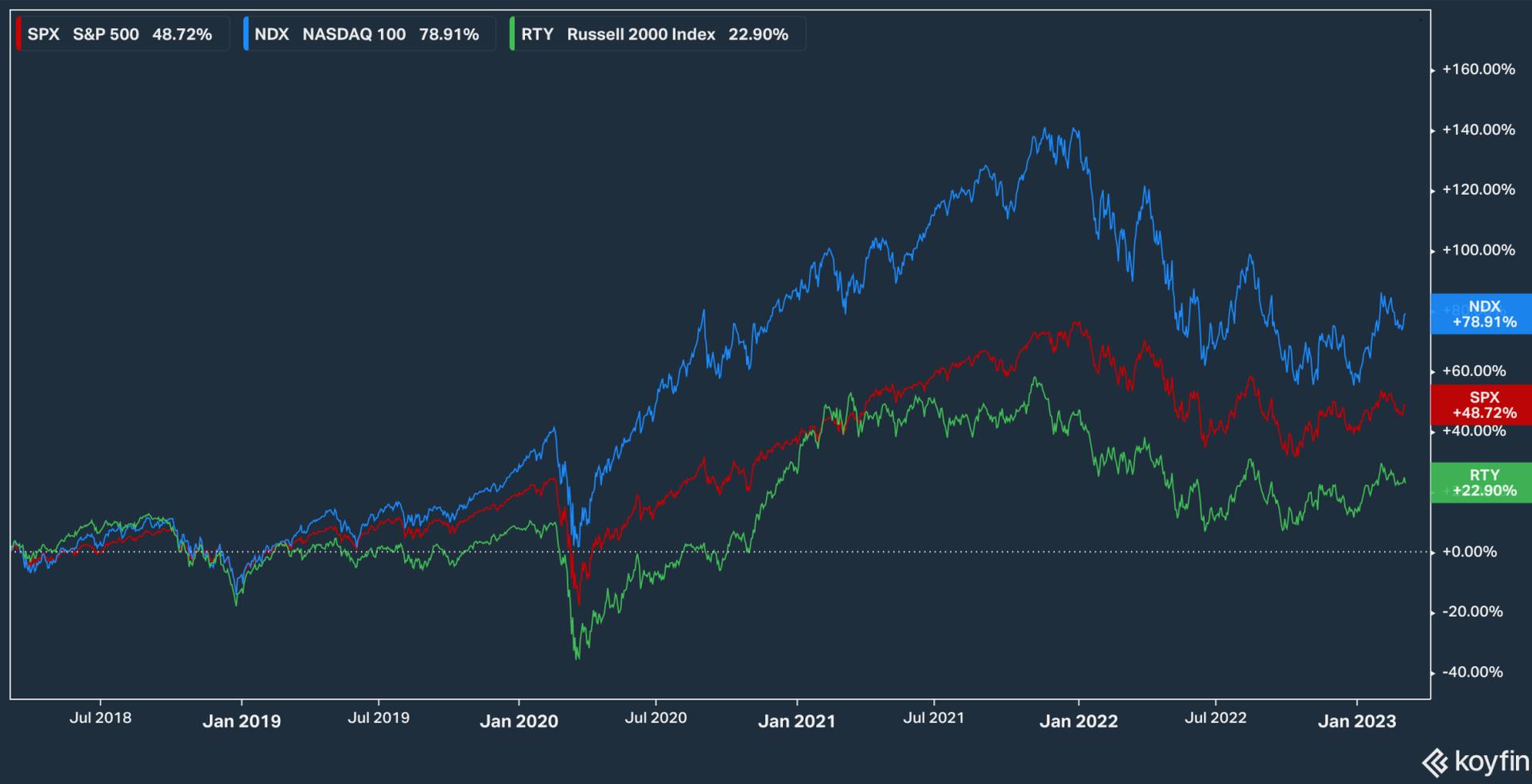


Source: Koyfin

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# Zooming out to look at the past 5 years:

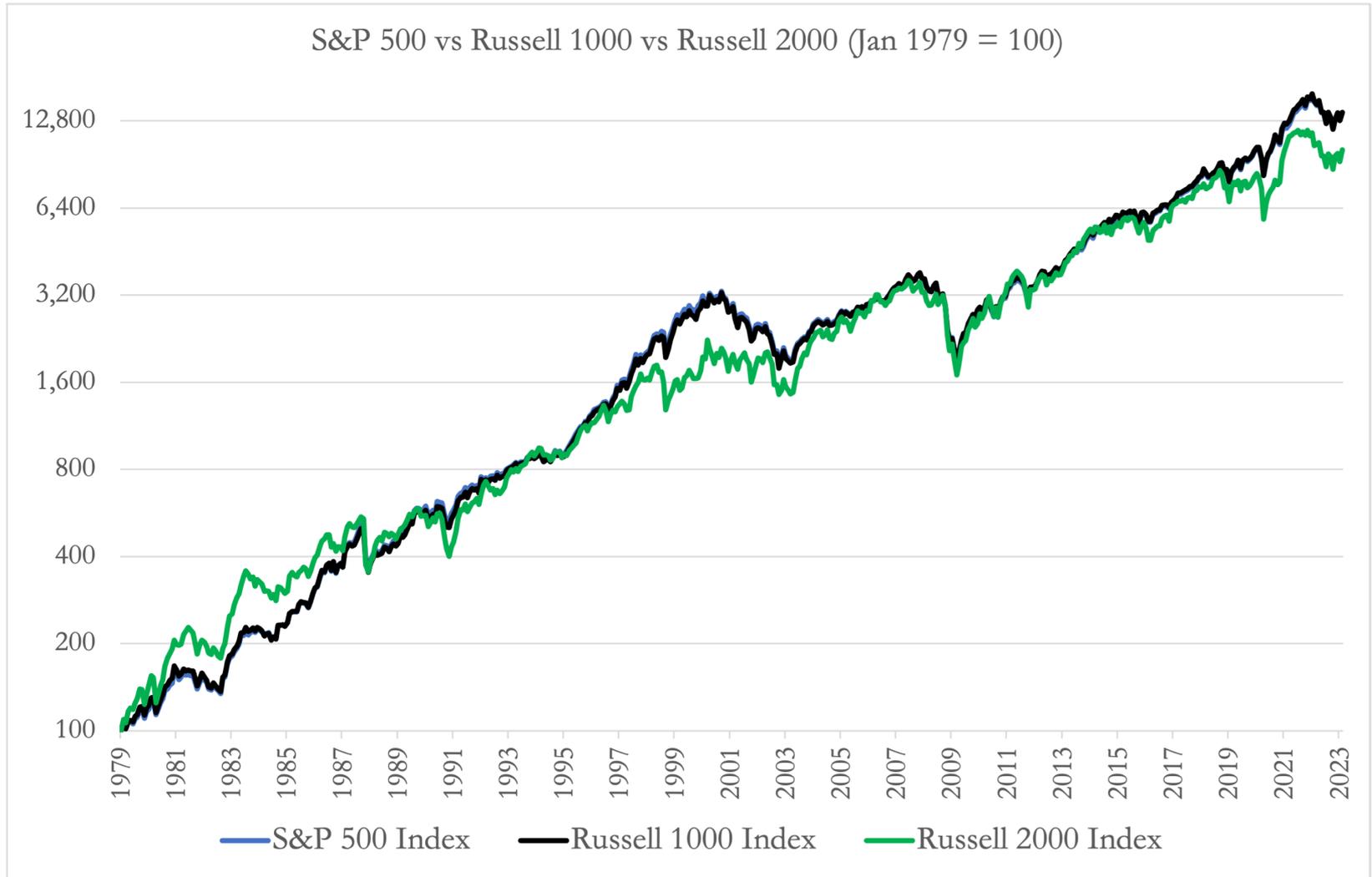


Source: Koyfin, 6 March 2023

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# Going back 44 years, on the size factor:

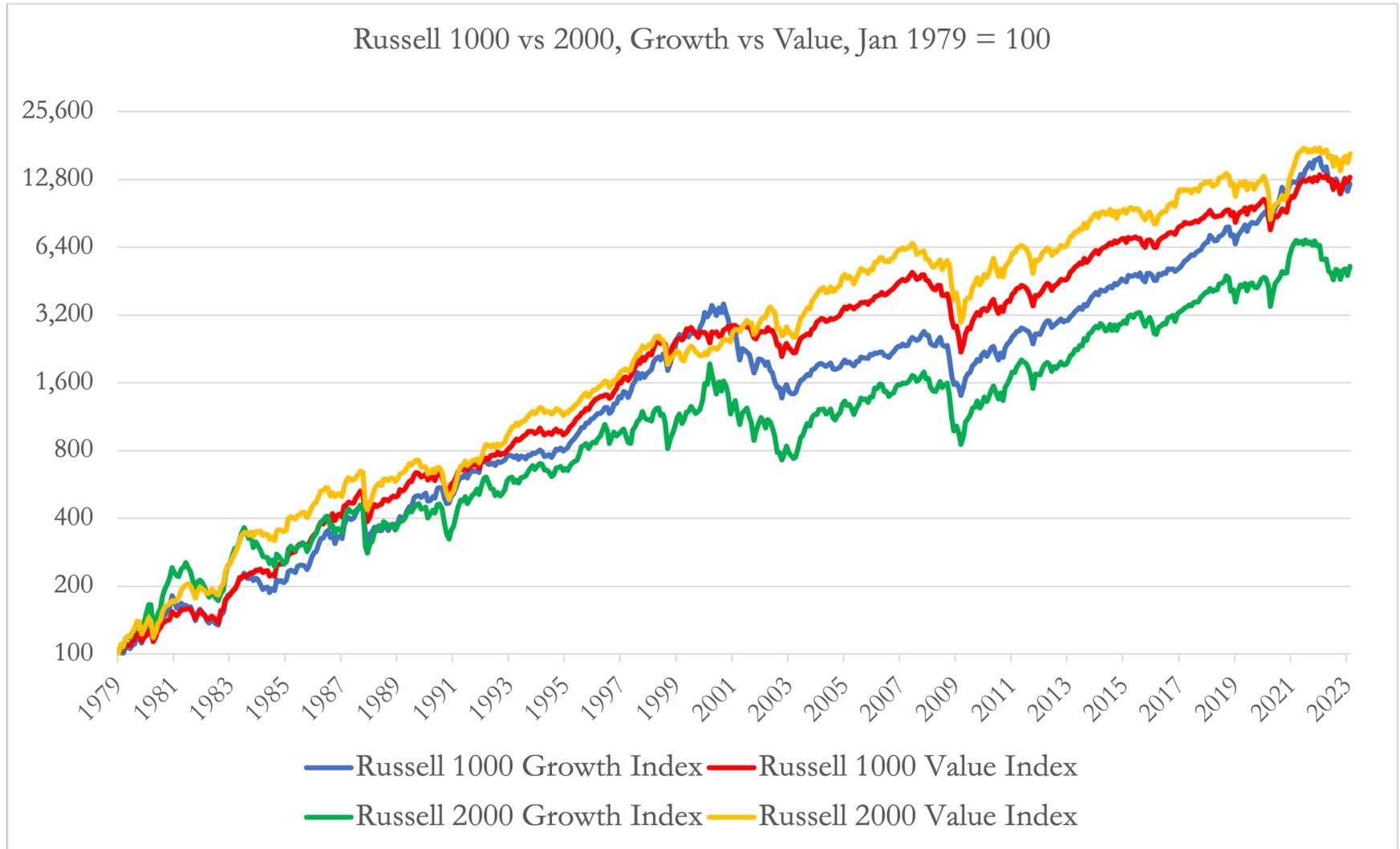


Source: Koyfin

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# Russell's Growth vs Value Indexes:



Source: Koyfin

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# Looking inside these indexes: S&P vs Nasdaq 1<sup>st</sup>, Then Russell

## S&P 500

- 500 firms (506 stocks)
- NYSE & NASDAQ
- US-based firms
- 11 sectors
- Profitability criteria

## Nasdaq 100

- 100 firms
- NASDAQ-only
- Mostly, not all, US firms
  - ASML & AZN European
  - JD & PDD Chinese
- Financials clearly excluded

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# Top overlaps between S&P 500 and Nasdaq 100

## Overlapping Holdings

Show 10 entries

Search:

| Company                                                                                                | Weight in S&P 500 | Weight in Nasdaq 100 | Overlap |
|--------------------------------------------------------------------------------------------------------|-------------------|----------------------|---------|
|  APPLE INC             | 6.2%              | 11.7%                | 6.2%    |
|  MICROSOFT CORP        | 5.4%              | 11.9%                | 5.4%    |
|  AMAZON.COM INC        | 2.6%              | 6.6%                 | 2.6%    |
|  ALPHABET INC. CLASS A | 1.8%              | 4.0%                 | 1.8%    |
|  ALPHABET INC. CLASS C | 1.6%              | 4.0%                 | 1.6%    |
|  NVIDIA CORP           | 1.3%              | 3.8%                 | 1.3%    |
|  TESLA MOTORS INC      | 1.1%              | 2.8%                 | 1.1%    |
|  META PLATFORMS INC   | 0.9%              | 2.7%                 | 0.9%    |
|  PEPSICO INC         | 0.7%              | 2.0%                 | 0.7%    |
|  BROADCOM INC.       | 0.7%              | 2.0%                 | 0.7%    |

Source: <https://www.etfrc.com/funds/overlap.php>

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# Top Differences Between S&P 500 vs Nasdaq

Note that all top 10 Nasdaq components are also in the S&P, only at about half the weight

## Position Highlights (Non-Overlapping Exposures)

### S&P 500 overweight vs Nasdaq 100

|                                                                                   |                             |      |
|-----------------------------------------------------------------------------------|-----------------------------|------|
|    | BERKSHIRE HATHAWAY INC-CL B | 1.7% |
|    | EXXON MOBIL CORP            | 1.4% |
|    | UNITEDHEALTH GROUP INC      | 1.4% |
|    | JOHNSON & JOHNSON           | 1.3% |
|    | JPMORGAN CHASE & CO         | 1.2% |
|    | VISA INC-CLASS A SHARES     | 1.1% |
|    | PROCTER & GAMBLE CO/THE     | 1.0% |
|    | HOME DEPOT INC              | 1.0% |
|   | CHEVRON CORP                | 1.0% |
|  | MASTERCARD INC-CLASS A      | 1.0% |

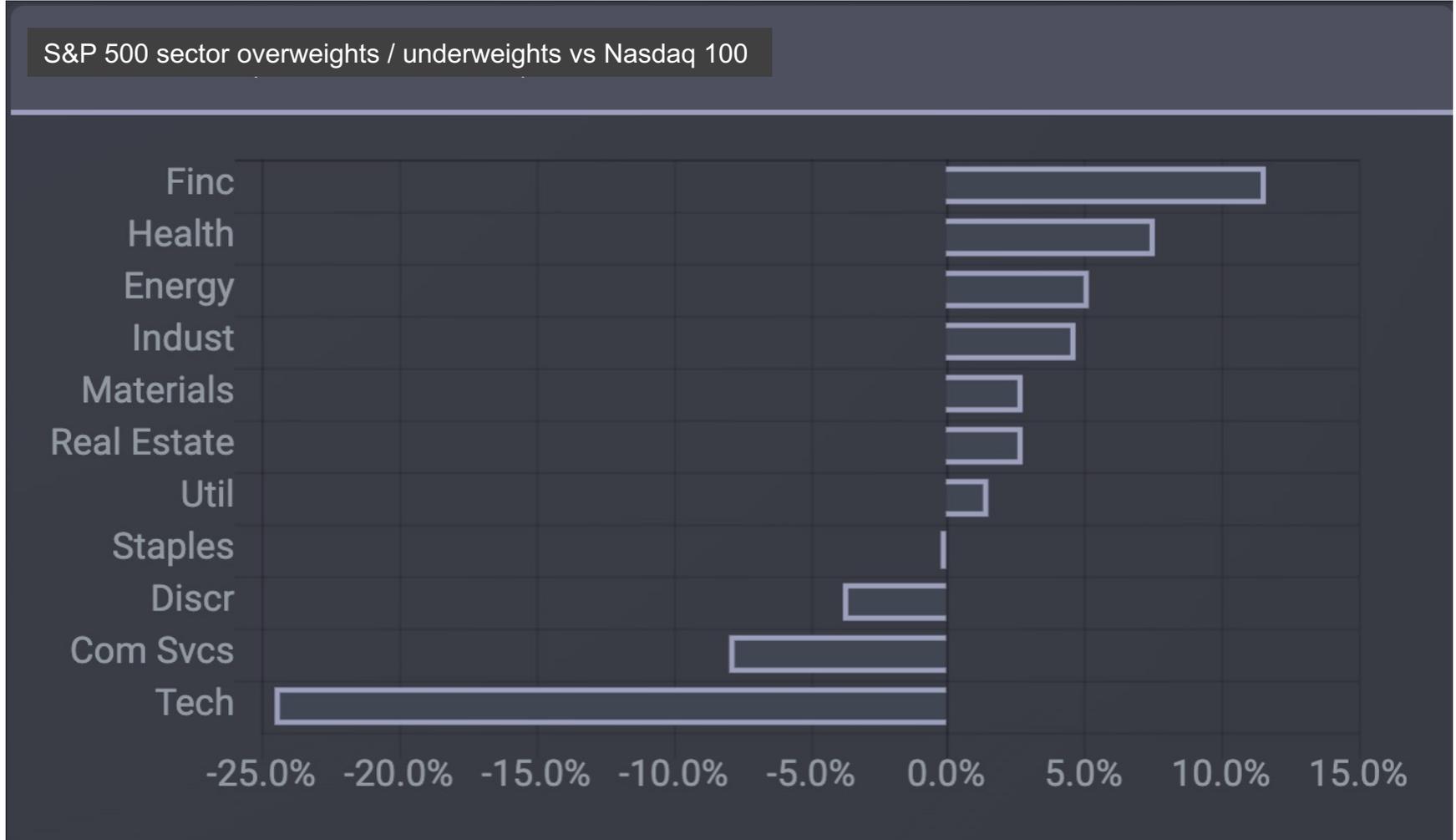
### S&P 500 underweight vs Nasdaq 100

|                                                                                       |                       |       |
|---------------------------------------------------------------------------------------|-----------------------|-------|
|    | MICROSOFT CORP        | -6.5% |
|    | APPLE INC             | -5.6% |
|    | AMAZON.COM INC        | -4.0% |
|    | NVIDIA CORP           | -2.5% |
|    | ALPHABET INC. CLASS C | -2.4% |
|    | ALPHABET INC. CLASS A | -2.2% |
|    | META PLATFORMS INC    | -1.8% |
|    | TESLA MOTORS INC      | -1.7% |
|   | PEPSICO INC           | -1.3% |
|  | BROADCOM INC.         | -1.3% |

Source: <https://www.etfrc.com/funds/overlap.php>

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# S&P 500 vs Nasdaq sector exposures



Source: <https://www.etfrc.com/funds/overlap.php>

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# S&P 500

Cheaper

|                       |       |
|-----------------------|-------|
| Price/Earnings        | 18.00 |
| Price/Book            | 3.30  |
| Price/Sales           | 2.02  |
| Price/Cash Flow       | 10.53 |
| Dividend Yield %      | 1.94  |
| Long-Term Earnings %  | 13.12 |
| Historical Earnings % | 16.62 |
| Sales Growth %        | 11.41 |
| Cash-Flow Growth %    | 8.07  |
| Book-Value Growth %   | 4.66  |

Investment as of Mar 03, 2023 | Category: Large Blend

# Nasdaq 100

|                       |       |
|-----------------------|-------|
| Price/Earnings        | 22.69 |
| Price/Book            | 5.15  |
| Price/Sales           | 3.30  |
| Price/Cash Flow       | 13.94 |
| Dividend Yield %      | 1.00  |
| Long-Term Earnings %  | 11.46 |
| Historical Earnings % | 12.44 |
| Sales Growth %        | 14.09 |
| Cash-Flow Growth %    | 6.17  |
| Book-Value Growth %   | 10.57 |

Investment as of Mar 06, 2023 | Category: Large Growth

Faster growth

Source: Morningstar, <https://www.morningstar.com/etfs/xnas/qqq/portfolio>

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# One near-term (< 5 years) driver of this spread



Source: Koyfin, 6 March 2023

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# Another futures for your watchlist: discount rates, which may drive valuation multiples of growth stocks



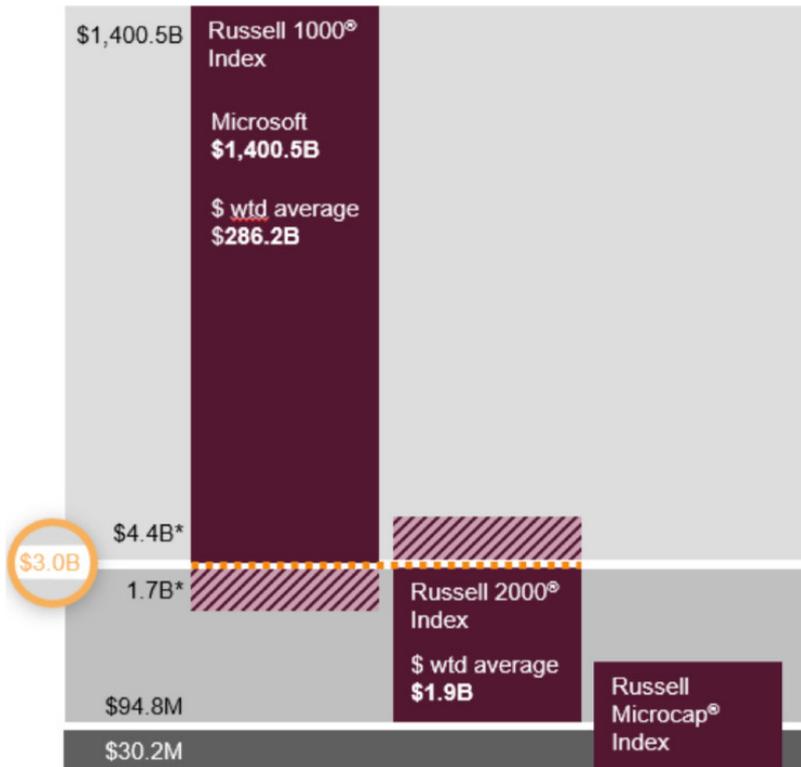
Source: Koyfin, 6 March 2023

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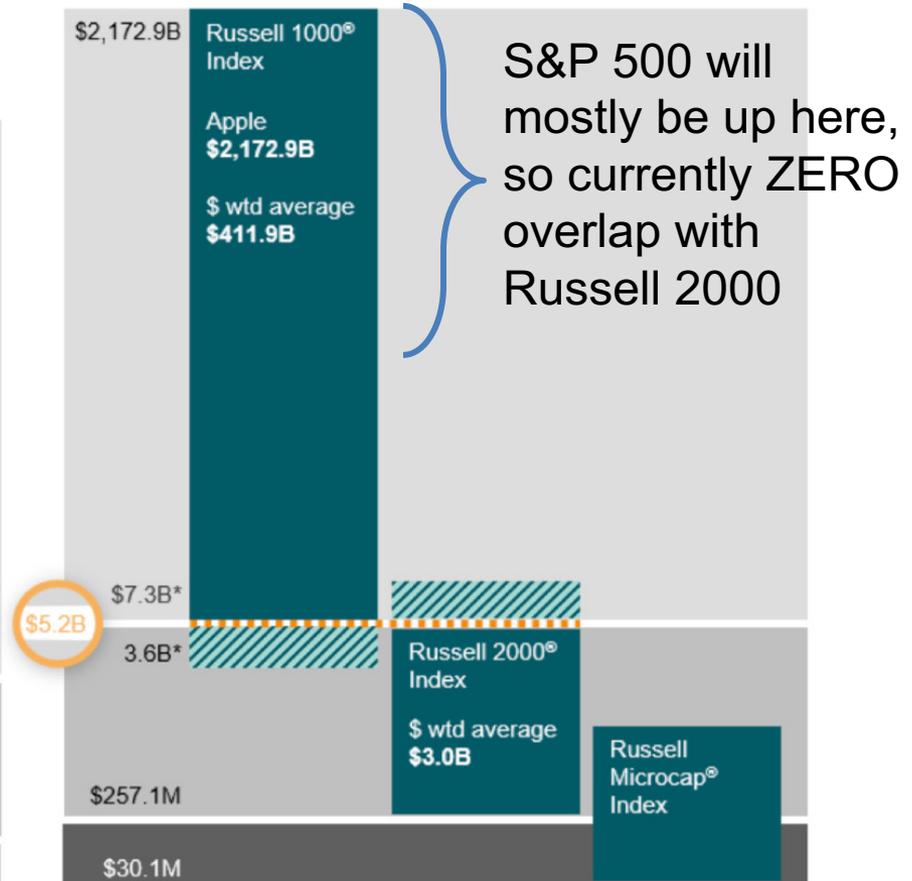


# How the Russell 2000 covers a different part of the US market

## 2020 market cap range



## 2021 market cap range



Source: <https://www.cmegroup.com/education/articles-and-reports/2021-russell-index-reconstitution-results.html>

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# S&P 500

# Russell 2000

Cheaper

|                       |       |
|-----------------------|-------|
| Price/Earnings        | 18.00 |
| Price/Book            | 3.30  |
| Price/Sales           | 2.02  |
| Price/Cash Flow       | 10.53 |
| Dividend Yield %      | 1.94  |
| Long-Term Earnings %  | 13.12 |
| Historical Earnings % | 16.62 |
| Sales Growth %        | 11.41 |
| Cash-Flow Growth %    | 8.07  |
| Book-Value Growth %   | 4.66  |

|                       |       |
|-----------------------|-------|
| Price/Earnings        | 13.29 |
| Price/Book            | 1.76  |
| Price/Sales           | 1.00  |
| Price/Cash Flow       | 4.83  |
| Dividend Yield %      | 1.70  |
| Long-Term Earnings %  | 18.70 |
| Historical Earnings % | 21.52 |
| Sales Growth %        | 9.41  |
| Cash-Flow Growth %    | 2.71  |
| Book-Value Growth %   | 11.58 |

Investment as of Mar 03, 2023 | Category: Large Blend

Investment as of Mar 02, 2023 | Category: Small Blend

Faster growth only in sales and cash flow

Source: Morningstar, <https://investor.morningstar.com/quotes/0P00002D92>

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# Futures & Options Basics

# MES & MNQ Futures Description

DESCRIPTION File Configure

Stock Description

## Micro E-Mini S&P 500 Stock Price Index

|                   |                             |
|-------------------|-----------------------------|
| Security Type     | <b>FUT</b>                  |
| Underlying        | <a href="#">MES IND</a>     |
| Contract Month    | <b>MAR23</b>                |
| Expiration Date   | <b>MAR 17 '23</b>           |
| Last Trading Date | <b>MAR 17 '23 08:30 CST</b> |
| Currency          | <b>USD</b>                  |
| Multiplier        | <b>5</b>                    |
| Exchange          | <b>CME</b>                  |
| Trading Class     | <b>MES</b>                  |
| Symbol            | <b>MESH3</b>                |
| Product Type      | <b>Equity Index</b>         |
| Settlement Method | <b>Cash</b>                 |

**Trading Schedule:** November 30, 2022 [Calendar](#)

|                         |                                                 |
|-------------------------|-------------------------------------------------|
| Regular Trading Session | 08:30 - 16:00 (22:30 - 06:00 your time)         |
| Total Available Hours   | <i>17:00*</i> - 16:00 (07:00 - 06:00 your time) |
| Exchange Time Zone      | US/Central                                      |

*\* Times in italics are on the calendar date preceding trade date*

Margin Information

### Margin Requirements Per Contract [More](#)

|             |                    |
|-------------|--------------------|
| Initial     | <b>1870.25 USD</b> |
| Maintenance | <b>1700.23 USD</b> |

DESCRIPTION File Configure

Stock Description

## Micro E-Mini Nasdaq-100 Index

|                   |                             |
|-------------------|-----------------------------|
| Security Type     | <b>FUT</b>                  |
| Underlying        | <a href="#">MNQ IND</a>     |
| Contract Month    | <b>MAR23</b>                |
| Expiration Date   | <b>MAR 17 '23</b>           |
| Last Trading Date | <b>MAR 17 '23 08:30 CST</b> |
| Currency          | <b>USD</b>                  |
| Multiplier        | <b>2</b>                    |
| Exchange          | <b>CME</b>                  |
| Trading Class     | <b>MNQ</b>                  |
| Symbol            | <b>MNQH3</b>                |
| Product Type      | <b>Equity Index</b>         |
| Settlement Method | <b>Cash</b>                 |

**Trading Schedule:** November 30, 2022 [Calendar](#)

|                         |                                                 |
|-------------------------|-------------------------------------------------|
| Regular Trading Session | 08:30 - 16:00 (22:30 - 06:00 your time)         |
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| Exchange Time Zone      | US/Central                                      |

*\* Times in italics are on the calendar date preceding trade date*

Margin Information

### Margin Requirements Per Contract [More](#)

|             |                    |
|-------------|--------------------|
| Initial     | <b>2724.42 USD</b> |
| Maintenance | <b>2476.75 USD</b> |

Source: IBKR

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# M2K (no options) vs RTY (w/options) Descriptions

| DESCRIPTION                                                             | File                                     | Configure | DESCRIPTION                                                             | File                                     | Configure |
|-------------------------------------------------------------------------|------------------------------------------|-----------|-------------------------------------------------------------------------|------------------------------------------|-----------|
| <b>Stock Description</b>                                                |                                          |           | <b>Stock Description</b>                                                |                                          |           |
| <b>Micro E-Mini Russell 2000 Index</b>                                  |                                          |           | <b>E-mini Russell 2000 Index</b>                                        |                                          |           |
| Security Type                                                           | <b>FUT</b>                               |           | Security Type                                                           | <b>FUT</b>                               |           |
| Underlying                                                              | <b><a href="#">M2K IND</a></b>           |           | Underlying                                                              | <b><a href="#">RTY IND</a></b>           |           |
| Contract Month                                                          | <b>MAR23</b>                             |           | Contract Month                                                          | <b>MAR23</b>                             |           |
| Expiration Date                                                         | <b>MAR 17 '23</b>                        |           | Expiration Date                                                         | <b>MAR 17 '23</b>                        |           |
| Last Trading Date                                                       | <b>MAR 17 '23 08:30 CST</b>              |           | Last Trading Date                                                       | <b>MAR 17 '23 08:30 CST</b>              |           |
| Currency                                                                | <b>USD</b>                               |           | Currency                                                                | <b>USD</b>                               |           |
| Multiplier                                                              | <b>5</b>                                 |           | Multiplier                                                              | <b>50</b>                                |           |
| Exchange                                                                | <b>CME</b>                               |           | Exchange                                                                | <b>CME</b>                               |           |
| Trading Class                                                           | <b>M2K</b>                               |           | Trading Class                                                           | <b>RTY</b>                               |           |
| Symbol                                                                  | <b>M2KH3</b>                             |           | Symbol                                                                  | <b>RTYH3</b>                             |           |
| Product Type                                                            | <b>Equity Index</b>                      |           | Product Type                                                            | <b>Equity Index</b>                      |           |
| Settlement Method                                                       | <b>Cash</b>                              |           | Settlement Method                                                       | <b>Cash</b>                              |           |
| <b>Trading Schedule:</b> February 1, 2023 <a href="#">Calendar</a>      |                                          |           | <b>Trading Schedule:</b> February 1, 2023 <a href="#">Calendar</a>      |                                          |           |
| Regular Trading Session                                                 | 08:30 - 16:00 (22:30 - 06:00 your time)  |           | Regular Trading Session                                                 | 08:30 - 16:00 (22:30 - 06:00 your time)  |           |
| Total Available Hours                                                   | 17:00* - 16:00 (07:00 - 06:00 your time) |           | Total Available Hours                                                   | 17:00* - 16:00 (07:00 - 06:00 your time) |           |
| Exchange Time Zone                                                      | US/Central                               |           | Exchange Time Zone                                                      | US/Central                               |           |
| <i>* Times in italics are on the calendar date preceding trade date</i> |                                          |           | <i>* Times in italics are on the calendar date preceding trade date</i> |                                          |           |
| <b>Margin Information</b>                                               |                                          |           | <b>Margin Information</b>                                               |                                          |           |
| <b>Margin Requirements Per Contract <a href="#">More</a></b>            |                                          |           | <b>Margin Requirements Per Contract <a href="#">More</a></b>            |                                          |           |
| Initial                                                                 | <b>893.82 USD</b>                        |           | Initial                                                                 | <b>8938.21 USD</b>                       |           |
| Maintenance                                                             | <b>715.06 USD</b>                        |           | Maintenance                                                             | <b>7150.57 USD</b>                       |           |

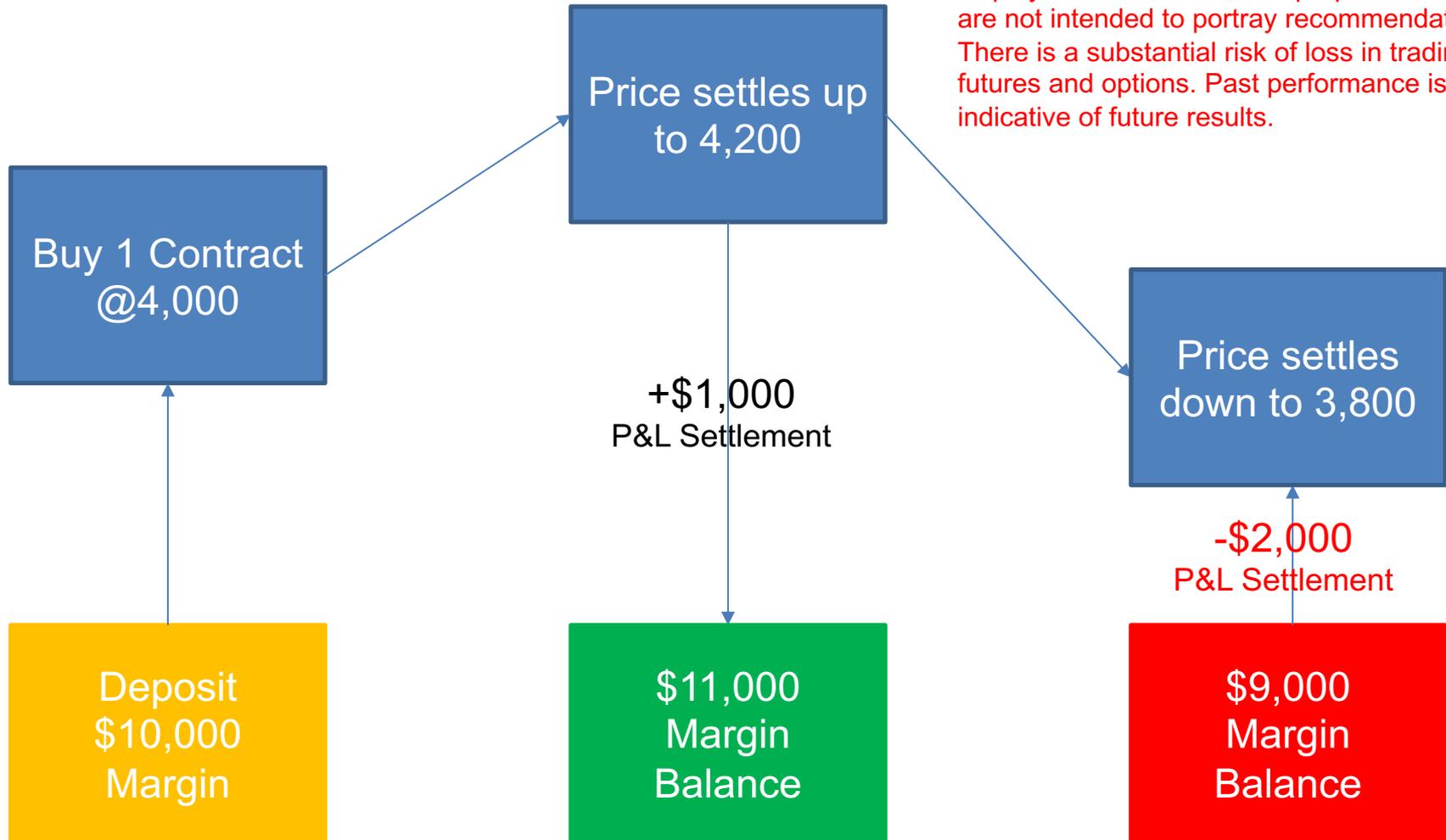
Source: IBKR

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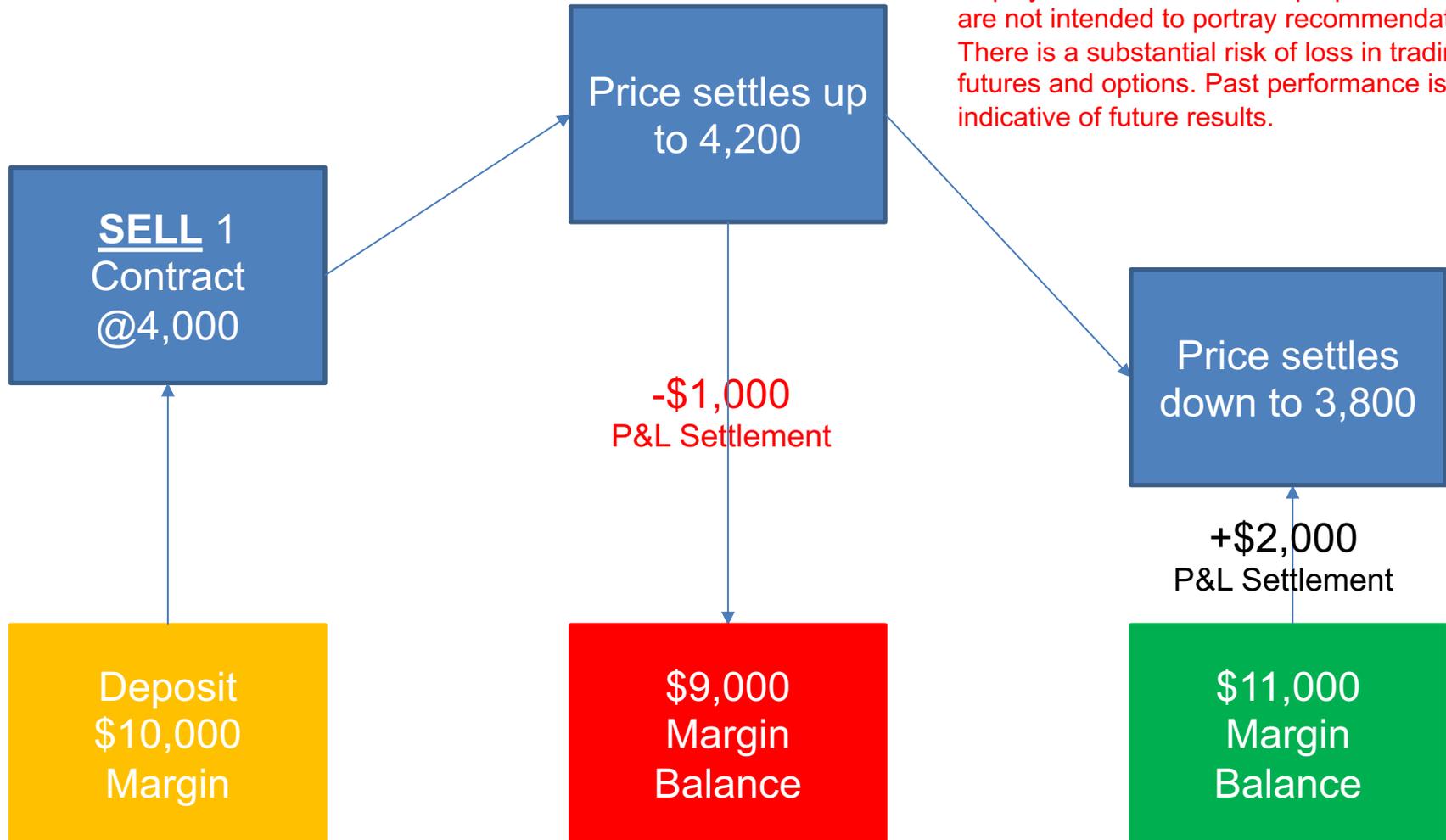
# Quick recap: how long futures trades work

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# How short selling futures works

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## Index Future

- Small initial margin
- Dividends implied in futures price
  - §1256 for US taxpayers
- Short just as easy as long
- Must roll quarterly

## Index Fund or ETF

- Pay or finance full value
- Dividend payments may be subject to withholding tax
- Short requires borrow
- Easy to buy and hold

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# Sample trade: Buy 1xMES@4,075, Sell 2xM2K@1,935

| S500 \ R2K | 1,685  | 1,735  | 1,785  | 1,835  | 1,885  | 1,935  | 1,985  | 2,035  | 2,085  | 2,135  | 2,185  |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 4,875      | 6,500  | 6,000  | 5,500  | 5,000  | 4,500  | 4,000  | 3,500  | 3,000  | 2,500  | 2,000  | 1,500  |
| 4,775      | 6,000  | 5,500  | 5,000  | 4,500  | 4,000  | 3,500  | 3,000  | 2,500  | 2,000  | 1,500  | 1,000  |
| 4,675      | 5,500  | 5,000  | 4,500  | 4,000  | 3,500  | 3,000  | 2,500  | 2,000  | 1,500  | 1,000  | 500    |
| 4,575      | 5,000  | 4,500  | 4,000  | 3,500  | 3,000  | 2,500  | 2,000  | 1,500  | 1,000  | 500    | 0      |
| 4,475      | 4,500  | 4,000  | 3,500  | 3,000  | 2,500  | 2,000  | 1,500  | 1,000  | 500    | 0      | -500   |
| 4,375      | 4,000  | 3,500  | 3,000  | 2,500  | 2,000  | 1,500  | 1,000  | 500    | 0      | -500   | -1,000 |
| 4,275      | 3,500  | 3,000  | 2,500  | 2,000  | 1,500  | 1,000  | 500    | 0      | -500   | -1,000 | -1,500 |
| 4,175      | 3,000  | 2,500  | 2,000  | 1,500  | 1,000  | 500    | 0      | -500   | -1,000 | -1,500 | -2,000 |
| 4,075      | 2,500  | 2,000  | 1,500  | 1,000  | 500    | 0      | -500   | -1,000 | -1,500 | -2,000 | -2,500 |
| 3,975      | 2,000  | 1,500  | 1,000  | 500    | 0      | -500   | -1,000 | -1,500 | -2,000 | -2,500 | -3,000 |
| 3,875      | 1,500  | 1,000  | 500    | 0      | -500   | -1,000 | -1,500 | -2,000 | -2,500 | -3,000 | -3,500 |
| 3,775      | 1,000  | 500    | 0      | -500   | -1,000 | -1,500 | -2,000 | -2,500 | -3,000 | -3,500 | -4,000 |
| 3,675      | 500    | 0      | -500   | -1,000 | -1,500 | -2,000 | -2,500 | -3,000 | -3,500 | -4,000 | -4,500 |
| 3,575      | 0      | -500   | -1,000 | -1,500 | -2,000 | -2,500 | -3,000 | -3,500 | -4,000 | -4,500 | -5,000 |
| 3,475      | -500   | -1,000 | -1,500 | -2,000 | -2,500 | -3,000 | -3,500 | -4,000 | -4,500 | -5,000 | -5,500 |
| 3,375      | -1,000 | -1,500 | -2,000 | -2,500 | -3,000 | -3,500 | -4,000 | -4,500 | -5,000 | -5,500 | -6,000 |
| 3,275      | -1,500 | -2,000 | -2,500 | -3,000 | -3,500 | -4,000 | -4,500 | -5,000 | -5,500 | -6,000 | -6,500 |

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Source: Author's calculation

# Going from futures to option chains on TWS

|                        | LAST     | VLM  | CHANGE  |        |
|------------------------|----------|------|---------|--------|
| MES ∞ Dec16'22 @GLOBEX | 3859.00  | 359K | -60.25  | -1.54% |
| MNQ ∞ Dec16'22 @GLOBEX | 11794.75 | 464K | -212.75 | -1.77% |

New Window | IBot | FYI <sup>19</sup> | Advisor Setup

Search

- For You**
  - Option Chain
  - Probability Lab
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- General Tools**
  - Order Entry
  - Portfolio
  - Watchlist
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  - Market Depth (Level II)
  - BookTrader
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  - Order Management
  - Time & Sales
  - Scanners
  - Forex
- Information System**
  - Fundamentals Explorer
  - Impact Dashboard
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  - News@IBKR
- Other Tools**
  - IBot - type to trade
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  - More Advanced Tools

**MITSUBISHI ESTATE CO LTD - FWB2**

- Stock (SMART)
- Combinations

**Micro E-Mini S&P 500 Stock Price Index - GLOBEX**

- Index
- Futures**
- Futures Options
- Combinations

**Search by company name**

[View Popular Products](#)

**MES@GLOBEX** 1 pt = \$5.00

|                  |                  |         |
|------------------|------------------|---------|
| MES <b>SEP</b>   | Sep16'22         | 3860.75 |
| MES <b>DEC</b>   | Dec16'22         | 3872.00 |
| MES <b>MAR</b>   | Mar17'23         | 3888.00 |
| MES ∞ <b>DEC</b> | Continuous (Dec) | 3872.00 |

**More/Multiple Futures Spreads**

Source: TWS

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# Micro S&P 500 Option Chain (MES)

MES ∞ Mar17'23 @CME PUT/CALLs (Side by Side) 4081.25 -8.75 (-0.21%) ? ? ? ? ? ?

APR EX3 / JUN EX3 5 79 DAYS    APR EX / JUN EX 5 86 DAYS    JUN / JUN MES 5 135 DAYS    MORE ▾

TABBED VIEW ▾ PUT/CALL ▾ 3.0 SD ▾ CME ▾ TRADING CLASS ▾ 5

| CALLS     |         |    |    |                 |       |        | PUTS   |           |         |    |    |                 |        |        |
|-----------|---------|----|----|-----------------|-------|--------|--------|-----------|---------|----|----|-----------------|--------|--------|
| OPTN O... | VOLU... | BD | SZ | BID x ASK       | DELTA | ASK SZ | STRIKE | OPTN O... | VOLU... | BD | SZ | BID x ASK       | DELTA  | ASK SZ |
|           |         |    | 32 | 695.00 x 697.75 | 0.889 | 32     | 3450   | 33        | 1       | 32 | 32 | 36.00 x 36.75   | -0.112 | 32     |
| 4         |         |    | 32 | 649.75 x 652.50 | 0.875 | 32     | 3500   | 77        | 2       | 32 | 32 | 40.50 x 41.25   | -0.125 | 32     |
| 3         |         |    | 32 | 605.25 x 608.00 | 0.861 | 32     | 3550   | 28        |         | 32 | 32 | 45.75 x 46.25   | -0.140 | 32     |
| 17        |         |    | 32 | 561.50 x 564.00 | 0.842 | 32     | 3600   |           |         | 32 | 32 | 51.50 x 52.25   | -0.158 | 32     |
| 1         |         |    | 32 | 518.50 x 521.00 | 0.824 | 32     | 3650   | 23        |         | 32 | 32 | 58.00 x 58.75   | -0.177 | 32     |
| 9         |         |    | 32 | 476.50 x 478.75 | 0.802 | 32     | 3700   | 303       | 42      | 32 | 32 | 65.50 x 66.25   | -0.199 | 32     |
|           |         |    | 32 | 435.50 x 437.75 | 0.778 | 32     | 3750   | 696       |         | 32 | 32 | 73.75 x 74.50   | -0.222 | 32     |
| 6         |         |    | 32 | 395.50 x 397.50 | 0.752 | 32     | 3800   | 76        | 1       | 32 | 32 | 83.00 x 84.00   | -0.248 | 32     |
| 17        |         |    | 32 | 356.25 x 358.50 | 0.724 | 32     | 3850   | 66        |         | 32 | 32 | 93.50 x 94.25   | -0.277 | 32     |
| 8         |         |    | 32 | 318.50 x 320.50 | 0.692 | 32     | 3900   | 61        |         | 32 | 32 | 105.00 x 106.00 | -0.309 | 32     |
| 9         |         |    | 32 | 282.00 x 284.00 | 0.658 | 32     | 3950   | 21        |         | 32 | 32 | 117.75 x 119.00 | -0.343 | 32     |
| 48        |         |    | 32 | 247.00 x 248.75 | 0.620 | 32     | 4000   | 411       | 33      | 32 | 32 | 132.00 x 133.00 | -0.381 | 32     |
| 15        |         |    | 32 | 213.75 x 215.25 | 0.580 | 32     | 4050   | 19        |         | 32 | 32 | 148.00 x 149.00 | -0.422 | 32     |
| 38        | 2       |    | 32 | 182.25 x 183.75 | 0.536 | 32     | 4100   | 15        | 1       | 32 | 32 | 165.75 x 167.25 | -0.466 | 32     |
| 13        | 1       |    | 32 | 153.25 x 154.50 | 0.490 | 32     | 4150   | 13        |         | 32 | 32 | 185.75 x 187.25 | -0.513 | 32     |
| 40        |         |    | 32 | 126.25 x 128.00 | 0.440 | 32     | 4200   | 21        | 3       | 32 | 32 | 208.50 x 210.25 | -0.563 | 32     |
| 28        |         |    | 32 | 102.75 x 104.00 | 0.390 | 32     | 4250   | 4         |         | 32 | 32 | 234.00 x 235.75 | -0.615 | 32     |
| 302       | 35      |    | 32 | 82.00 x 83.00   | 0.339 | 32     | 4300   | 14        | 3       | 32 | 32 | 262.50 x 264.25 | -0.667 | 32     |
| 27        |         |    | 32 | 64.25 x 65.00   | 0.288 | 32     | 4350   | 2         |         | 32 | 32 | 294.00 x 296.00 | -0.718 | 32     |
| 57        | 2       |    | 32 | 49.25 x 50.25   | 0.241 | 32     | 4400   | 3         |         | 32 | 32 | 328.50 x 330.75 | -0.767 | 32     |
| 84        |         |    | 32 | 37.25 x 38.00   | 0.198 | 32     | 4450   | 1         |         | 32 | 32 | 366.00 x 368.25 | -0.812 | 32     |
| 113       | 2       |    | 32 | 28.00 x 28.50   | 0.158 | 32     | 4500   | 2         |         | 32 | 32 | 406.00 x 408.75 | -0.854 | 32     |
| 55        |         |    | 32 | 20.50 x 21.25   | 0.125 | 32     | 4550   |           |         |    |    | x               | -0.890 |        |

IV: 17.5%

OFF Strategy Builder

Source: IBKR TWS, 1 Feb 2023

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# Description of MES & MNQ options

| DESCRIPTION                                                                     |                                                 |
|---------------------------------------------------------------------------------|-------------------------------------------------|
| <b>Stock Description</b>                                                        |                                                 |
| <b>Micro E-Mini S&amp;P 500 Stock Price Index</b>                               |                                                 |
| Product                                                                         | <b>MES</b>                                      |
| Security Type                                                                   | <b>FOP</b>                                      |
| Underlying                                                                      | <a href="#">MESZ2 DEC 16 '22 FUT</a>            |
| Contract Month                                                                  | <b>DEC22</b>                                    |
| Expiration Date                                                                 | <b>DEC 16 '22</b>                               |
| Last Trading Date                                                               | <b>DEC 16 '22 08:30 CST</b>                     |
| Strike                                                                          | <b>4000</b>                                     |
| Right                                                                           | <b>Call</b>                                     |
| Currency                                                                        | <b>USD</b>                                      |
| Multiplier                                                                      | <b>5</b>                                        |
| Exchange                                                                        | <b>GLOBEX</b>                                   |
| Symbol                                                                          | <b>MESZ2 C4000</b>                              |
| Trading Class                                                                   | <b>MES</b>                                      |
| Product Type                                                                    | <b>Equity Index</b>                             |
| Settlement Method                                                               | <b>Physical Delivery</b>                        |
| Exercise Style                                                                  | <b>American</b>                                 |
| <b>Trading Schedule:</b> September 2, 2022 <a href="#">Calendar</a>             |                                                 |
| Regular Trading Session                                                         | 08:30 - 16:00 (21:30 - 05:00 your time)         |
| Total Available Hours                                                           | <i>17:00*</i> - 16:00 (06:00 - 05:00 your time) |
| Exchange Time Zone                                                              | US/Central                                      |
| <small>* Times in italics are on the calendar date preceding trade date</small> |                                                 |

| DESCRIPTION                                                                     |                                                 |
|---------------------------------------------------------------------------------|-------------------------------------------------|
| <b>Stock Description</b>                                                        |                                                 |
| <b>Micro E-Mini Nasdaq-100 Index</b>                                            |                                                 |
| Product                                                                         | <b>MNQ</b>                                      |
| Security Type                                                                   | <b>FOP</b>                                      |
| Underlying                                                                      | <a href="#">MNQZ2 DEC 16 '22 FUT</a>            |
| Contract Month                                                                  | <b>DEC22</b>                                    |
| Expiration Date                                                                 | <b>DEC 16 '22</b>                               |
| Last Trading Date                                                               | <b>DEC 16 '22 08:30 CST</b>                     |
| Strike                                                                          | <b>12500</b>                                    |
| Right                                                                           | <b>Call</b>                                     |
| Currency                                                                        | <b>USD</b>                                      |
| Multiplier                                                                      | <b>2</b>                                        |
| Exchange                                                                        | <b>GLOBEX</b>                                   |
| Symbol                                                                          | <b>MNQZ2 C1250</b>                              |
| Trading Class                                                                   | <b>MNQ</b>                                      |
| Product Type                                                                    | <b>Equity Index</b>                             |
| Settlement Method                                                               | <b>Physical Delivery</b>                        |
| Exercise Style                                                                  | <b>American</b>                                 |
| <b>Trading Schedule:</b> September 2, 2022 <a href="#">Calendar</a>             |                                                 |
| Regular Trading Session                                                         | 08:30 - 16:00 (21:30 - 05:00 your time)         |
| Total Available Hours                                                           | <i>17:00*</i> - 16:00 (06:00 - 05:00 your time) |
| Exchange Time Zone                                                              | US/Central                                      |
| <small>* Times in italics are on the calendar date preceding trade date</small> |                                                 |

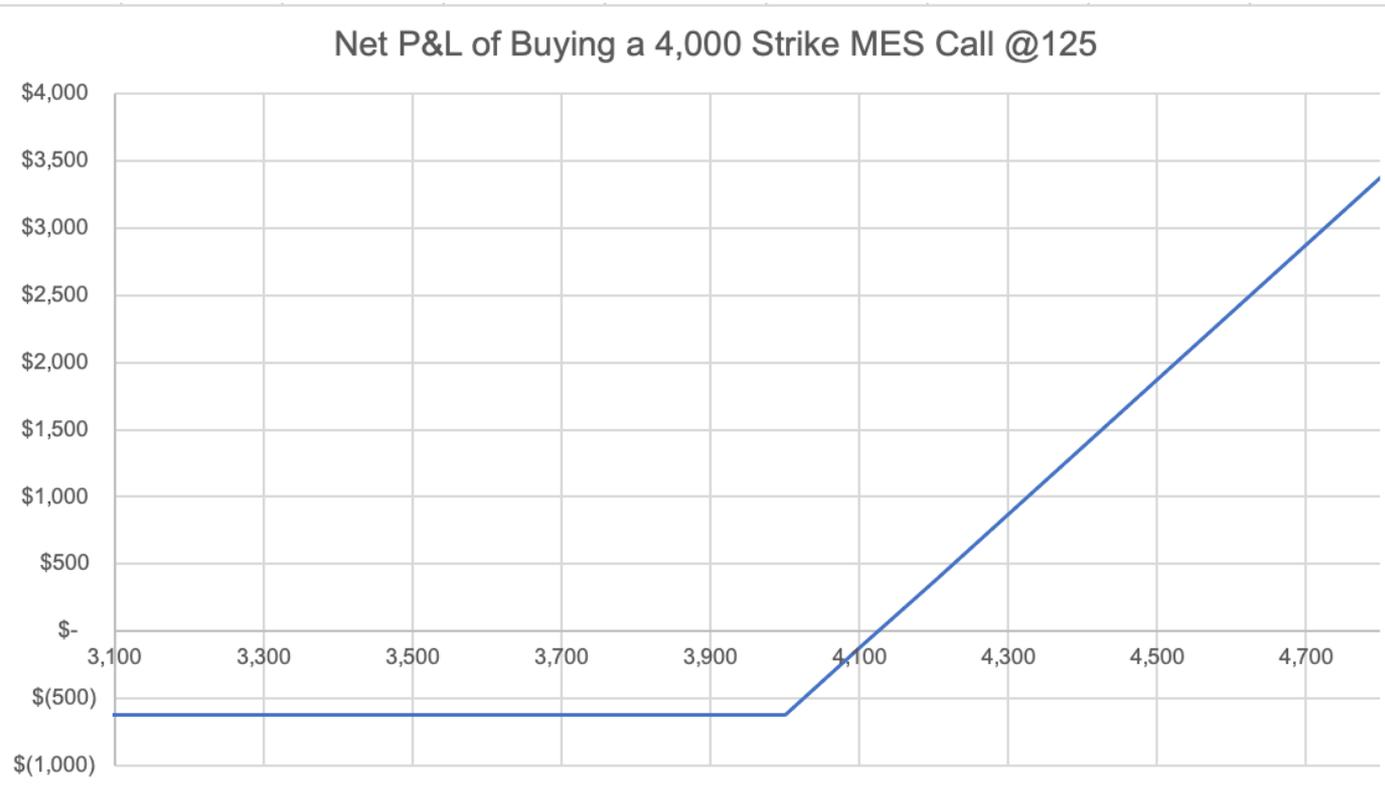
Source: IBKR

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# Sample payoff diagram: Buying an MES call (\$5/point)

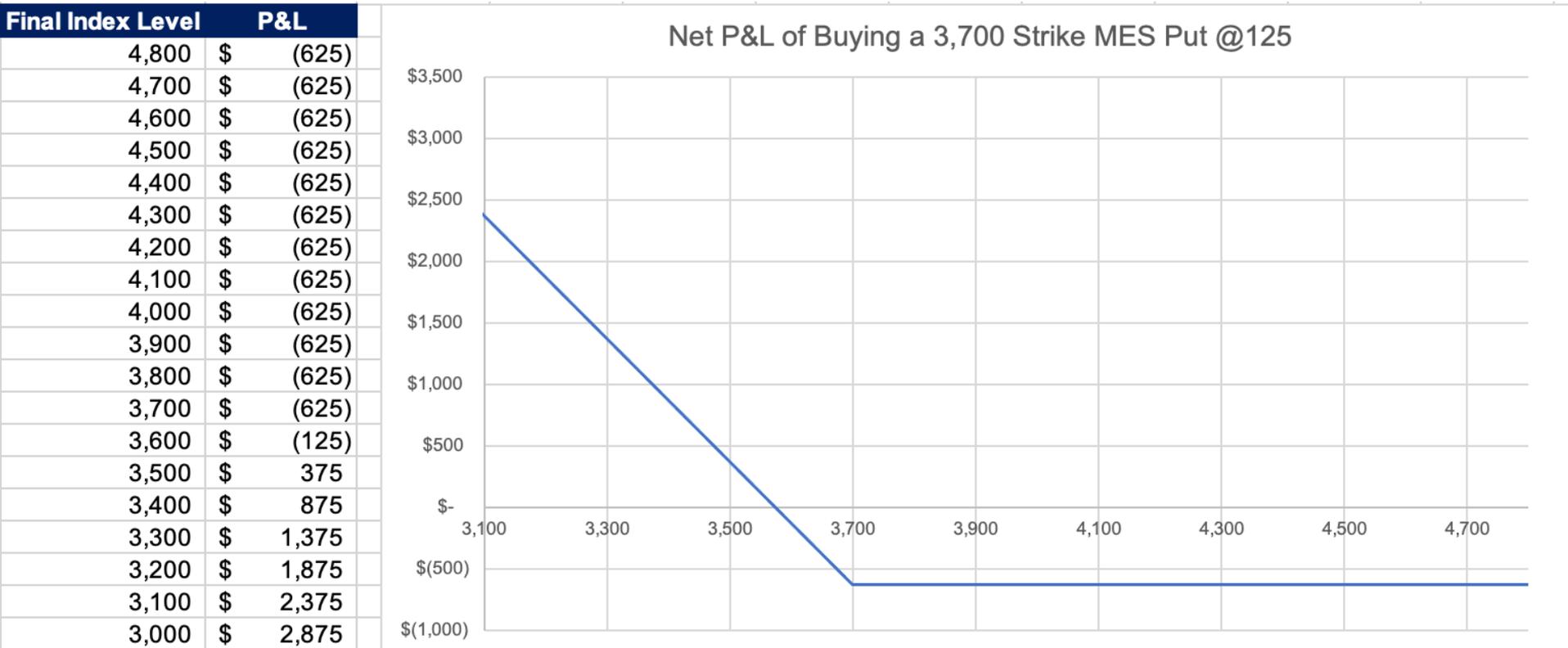
| Final Index Level | P&L      |
|-------------------|----------|
| 4,800             | \$ 3,375 |
| 4,700             | \$ 2,875 |
| 4,600             | \$ 2,375 |
| 4,500             | \$ 1,875 |
| 4,400             | \$ 1,375 |
| 4,300             | \$ 875   |
| 4,200             | \$ 375   |
| 4,100             | \$ (125) |
| 4,000             | \$ (625) |
| 3,900             | \$ (625) |
| 3,800             | \$ (625) |
| 3,700             | \$ (625) |
| 3,600             | \$ (625) |
| 3,500             | \$ (625) |
| 3,400             | \$ (625) |
| 3,300             | \$ (625) |
| 3,200             | \$ (625) |
| 3,100             | \$ (625) |
| 3,000             | \$ (625) |



Source: Author's calculation

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# Sample payoff diagram: Buying an MES put (\$5/point)



By combining calls and puts, you can make very creative payoff profiles, as we'll see later

Source: Author's calculation

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# Using options to trade one index vs another

# Sample spread trade: Buy 10,800 MNQ Put + Sell 3,700 MES Put, @~Zero

| S500 \ N100 | 9,550      | 9,800      | 10,050     | 10,300     | 10,550     | 10,800     | 11,050     | 11,300     | 11,550     |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 4,800       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 4,700       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 4,600       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 4,500       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 4,400       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 4,300       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 4,200       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 4,100       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 4,000       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 3,900       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 3,800       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 3,700       | \$ 2,500   | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ -       | \$ -       | \$ -       |
| 3,600       | \$ 2,000   | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ (500)   | \$ (500)   | \$ (500)   | \$ (500)   |
| 3,500       | \$ 1,500   | \$ 1,000   | \$ 500     | \$ -       | \$ (500)   | \$ (1,000) | \$ (1,000) | \$ (1,000) | \$ (1,000) |
| 3,400       | \$ 1,000   | \$ 500     | \$ -       | \$ (500)   | \$ (1,000) | \$ (1,500) | \$ (1,500) | \$ (1,500) | \$ (1,500) |
| 3,300       | \$ 500     | \$ -       | \$ (500)   | \$ (1,000) | \$ (1,500) | \$ (2,000) | \$ (2,000) | \$ (2,000) | \$ (2,000) |
| 3,200       | \$ -       | \$ (500)   | \$ (1,000) | \$ (1,500) | \$ (2,000) | \$ (2,500) | \$ (2,500) | \$ (2,500) | \$ (2,500) |
| 3,100       | \$ (500)   | \$ (1,000) | \$ (1,500) | \$ (2,000) | \$ (2,500) | \$ (3,000) | \$ (3,000) | \$ (3,000) | \$ (3,000) |
| 3,000       | \$ (1,000) | \$ (1,500) | \$ (2,000) | \$ (2,500) | \$ (3,000) | \$ (3,500) | \$ (3,500) | \$ (3,500) | \$ (3,500) |

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Source: Author's calculation

Put vs put has the advantage that the short leg has limited liability

Before we  
continue, a quick  
word on “the  
greeks”

# Useful Greek letters for option traders:

\* **Delta** = Change in option price vs change in index

\* **Theta** = “Time Decay” = Change in option price vs passage of time

Not a greek, but “implied volatility” is a key variable in option pricing, and “volatility skew” is the reason the probability curves above are not symmetrical.

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# Spread / Multi-leg Option Strategies

# Sample MNQ put spread

MNQ Mar17'23 @CME PUT/CALLS (Side by Side) 11655.50 +16.00 (+0.14%) ?

JAN'23 MQE / MAR'23 MQE 2 62 DAYS FEB'23 MQ3 / MAR'23 MQ3 2 79 DAYS MAR'23 / MAR'23 MNQ 2 107 DAYS MORE

TABBED VIEW PUT/CALL STRIKES CME TRADING CLASS 2

| CALLS |        |     |       |                   |       |          | PUTS     |        |      |        |     |       |                 |        |          |          |
|-------|--------|-----|-------|-------------------|-------|----------|----------|--------|------|--------|-----|-------|-----------------|--------|----------|----------|
| OPTN  | VOLUME | BID | SI... | BID x ASK         | DELTA | IMPLD... | ASK S... | STRIKE | OPTN | VOLUME | BID | SI... | BID x ASK       | DELTA  | IMPLD... | ASK S... |
|       |        | 25  | ♦     | 2724.00 x 2738.25 | 0.918 | 37.1%    | 25       | 9000   | 10   | 1      | 50  | ♦     | 91.75 x 99.50   | -0.082 | 37.2%    | 200      |
| 2     |        | 25  | ♦     | 2272.25 x 2287.25 | 0.880 | 35.1%    | 25       | 9500   | 37   |        | 50  | ♦     | 138.50 x 146.25 | -0.121 | 35.2%    | 50       |
| 1     |        | 25  | ♦     | 1845.25 x 1859.75 | 0.827 | 33.3%    | 25       | 10000  | 27   | 8      | 50  | ♦     | 208.00 x 215.50 | -0.173 | 33.4%    | 50       |
| 2     |        | 25  | ♦     | 1449.25 x 1462.75 | 0.758 | 31.6%    | 25       | 10500  | 11   |        | 50  | ♦     | 307.50 x 314.75 | -0.242 | 31.6%    | 50       |
| 7     |        | 25  | ♦     | 1091.50 x 1103.00 | 0.670 | 30%      | 25       | 11000  | 35   | 1      | 50  | ♦     | 443.75 x 451.75 | -0.331 | 30%      | 50       |
| 15    |        | 25  | ♦     | 777.50 x 787.75   | 0.566 | 28.5%    | 25       | 11500  | 23   | 1      | 50  | ♦     | 624.00 x 634.25 | -0.435 | 28.5%    | 50       |
| 54    | 2      | 50  | ♦     | 516.50 x 526.75   | 0.449 | 26.8%    | 50       | 12000  | 32   | 5      | 50  | ♦     | 858.00 x 868.25 | -0.553 | 26.8%    | 50       |

IV: 27.8%

Strategy Builder Strategies

| ACTN                           | RT | LST TRD DAY | STRIKE | TYPE | DELTA  | THETA  | BID/ASK         | SIZE    |         |
|--------------------------------|----|-------------|--------|------|--------|--------|-----------------|---------|---------|
| × Leg 1 Buy                    | 1  | MAR 17 '23  | 11000  | Put  | -0.331 | -3.130 | 443.75 x 451.75 | 50 x 50 | Delayed |
| × Leg 2 Sell                   | 1  | MAR 17 '23  | 10000  | Put  | -0.173 | -2.468 | 208.00 x 215.50 | 50 x 50 | Delayed |
| Mar17 '23 11000/10000 Bear Put |    |             |        |      | -0.157 | -0.662 | 228.25 x 243.75 | 50 x 50 | Delayed |

Clear All Legs + PROFILE + Add to Watchlists

♦ 228.25 243.75 ♦

BID MID ASK

Order Entry LMT QTY 1 LMT PRC 0.00 DAY advanced + Margin Impact: n/a Allocation: All: Available Equity Submit Order

Source: TWS

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# Put spread strategy: lower Delta and Theta than outright put

| Final Index Level | P&L      |
|-------------------|----------|
| 12,000            | \$ (440) |
| 11,750            | \$ (440) |
| 11,500            | \$ (440) |
| 11,250            | \$ (440) |
| 11,000            | \$ (440) |
| 10,750            | \$ 60    |
| 10,500            | \$ 560   |
| 10,250            | \$ 1,060 |
| 10,000            | \$ 1,560 |
| 9,750             | \$ 1,560 |
| 9,500             | \$ 1,560 |
| 9,250             | \$ 1,560 |
| 9,000             | \$ 1,560 |
| 8,750             | \$ 1,560 |
| 8,500             | \$ 1,560 |
| 8,250             | \$ 1,560 |
| 8,000             | \$ 1,560 |
| 7,750             | \$ 1,560 |
| 7,500             | \$ 1,560 |



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Source: Author's calculation

# Sample "1x2" costless / credit put spread

PUT/CALLS (Side by Side) ▾
11662.00 +22.50 (+0.19%) ? ⚙️ 🔗 🏠

JAN'23 MQE / MAR'23 MQE

2

62 DAYS

FEB'23 MQ3 / MAR'23 MQ3

2

79 DAYS

MAR'23 / MAR'23 MNQ

2

107 DAYS

MORE ▾

TABBED VIEW ▾
PUT/CALL ▾
STRIKES ▾
CME ▾
TRADING CLASS ▾ 2

| CALLS    |        |     |       |                   |       |          |          | PUTS   |          |        |     |       |           |                 |          |          |       |     |
|----------|--------|-----|-------|-------------------|-------|----------|----------|--------|----------|--------|-----|-------|-----------|-----------------|----------|----------|-------|-----|
| OPTN ... | VOLUME | BID | SI... | BID x ASK         | DELTA | IMPLD... | ASK S... | STRIKE | OPTN ... | VOLUME | BID | SI... | BID x ASK | DELTA           | IMPLD... | ASK S... |       |     |
|          |        | 25  | ♦     | 2732.25 x 2747.50 | ♦     | 0.918    | 37.1%    | 25     | 9000     | 10     | 1   | 50    | ♦         | 91.50 x 99.50   | ♦        | -0.082   | 37.2% | 200 |
| 2        |        | 25  | ♦     | 2281.50 x 2296.25 | ♦     | 0.880    | 35.1%    | 25     | 9500     | 37     |     | 50    | ♦         | 137.50 x 146.25 | ♦        | -0.121   | 35.2% | 50  |
| 1        |        | 25  | ♦     | 1854.00 x 1868.00 | ♦     | 0.827    | 33.3%    | 25     | 10000    | 27     | 8   | 50    | ♦         | 206.50 x 215.50 | ♦        | -0.173   | 33.4% | 50  |
| 2        |        | 25  | ♦     | 1457.00 x 1470.50 | ♦     | 0.758    | 31.6%    | 25     | 10500    | 11     |     | 50    | ♦         | 305.50 x 314.75 | ♦        | -0.242   | 31.6% | 50  |
| 7        |        | 25  | ♦     | 1097.75 x 1109.75 | ♦     | 0.670    | 30%      | 25     | 11000    | 35     | 1   | 50    | ♦         | 440.75 x 450.25 | ♦        | -0.331   | 30%   | 50  |
| 15       |        | 25  | ♦     | 782.75 x 793.75   | ♦     | 0.566    | 28.5%    | 25     | 11500    | 23     | 1   | 50    | ♦         | 620.25 x 630.00 | ♦        | -0.436   | 28.5% | 50  |
| 54       | 2      | 50  | ♦     | 521.50 x 531.50   | ♦     | 0.449    | 26.8%    | 50     | 12000    | 32     | 5   | 50    | ♦         | 853.00 x 863.50 | ♦        | -0.554   | 26.8% | 50  |

Strategy Builder Strategies ▾

| ACTN         | RT | LST TRD DAY | STRIKE | TYPE | DELTA        | THETA        | BID/ASK             | SIZE           |         |
|--------------|----|-------------|--------|------|--------------|--------------|---------------------|----------------|---------|
| ✖ Leg 1 Buy  | 1  | MAR 17 '23  | 11000  | Put  | -0.331       | -3.131       | 440.75 x 450.25     | 50 x 50        | Delayed |
| ✖ Leg 2 Sell | 2  | MAR 17 '23  | 10000  | Put  | -0.173       | -2.469       | 206.50 x 215.50     | 50 x 50        | Delayed |
| <b>Total</b> |    |             |        |      | <b>0.016</b> | <b>1.807</b> | <b>9.75 x 37.25</b> | <b>25 x 25</b> | Delayed |

♦ 9.75
37.25 ♦

BID MID ASK

**Order Entry**

Allocation: All: Available Equity ▾

LMT ▾ QTY 1 LMT PRC 0.00 DAY ▾ advanced +

Margin Impact: n/a

Source: TWS

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# Sample payoff diagram: Delta and theta initially positive, can flip negative

| Final Index Level | P&L        |
|-------------------|------------|
| 12,000            | \$ 20      |
| 11,750            | \$ 20      |
| 11,500            | \$ 20      |
| 11,250            | \$ 20      |
| 11,000            | \$ 20      |
| 10,750            | \$ 520     |
| 10,500            | \$ 1,020   |
| 10,250            | \$ 1,520   |
| 10,000            | \$ 2,020   |
| 9,750             | \$ 1,520   |
| 9,500             | \$ 1,020   |
| 9,250             | \$ 520     |
| 9,000             | \$ 20      |
| 8,750             | \$ (480)   |
| 8,500             | \$ (980)   |
| 8,250             | \$ (1,480) |
| 8,000             | \$ (1,980) |
| 7,750             | \$ (2,480) |
| 7,500             | \$ (2,980) |



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Source: Author's calculation

# Sample "Straddle"

MES Mar17'23 @CME PUT/CALLS (Side by Side) 3982.00 -13.00 (-0.33%)

JAN'23 EX3 / MAR'23 EX3 5 51 DAYS  
 JAN'23 EX3 / MAR'23 EX3 5 62 DAYS  
 FEB'23 EX3 / MAR'23 EX3 5 79 DAYS  
 MAR'23 / MAR'23 MES 5 107 DAYS

TABBED VIEW PUT/CALL STRIKES CME TRADING CLASS 5 IV: 22.0%

| CALLS |        |        |        |       |       |     |        | PUTS |        |        |        |        |        |       |        |
|-------|--------|--------|--------|-------|-------|-----|--------|------|--------|--------|--------|--------|--------|-------|--------|
| OPTN  | VOLUME | BID    | ASK    | DELTA | IMPLD | ASK | STRIKE | OPTN | VOLUME | BID    | ASK    | DELTA  | IMPLD  | ASK   | STRIKE |
| 3     | 131    | 451.50 | 456.00 | 0.784 | 26.1% | 131 | 3600   | 108  | 2      | 534    | 73.50  | 74.75  | -0.217 | 26.2% | 122    |
| 9     | 136    | 412.25 | 416.75 | 0.758 | 25.6% | 136 | 3650   | 28   | 115    | 84.00  | 85.25  | -0.243 | 25.7%  | 486   |        |
| 13    | 141    | 374.25 | 378.50 | 0.729 | 25.1% | 141 | 3700   | 71   | 7      | 100    | 95.50  | 96.75  | -0.272 | 25.1% | 436    |
| 1     | 148    | 337.50 | 341.00 | 0.698 | 24.7% | 148 | 3750   | 264  | 9      | 86     | 108.25 | 109.50 | -0.303 | 24.7% | 392    |
| 114   | 155    | 302.25 | 306.25 | 0.665 | 24%   | 155 | 3800   | 60   | 4      | 79     | 122.25 | 123.50 | -0.336 | 24.1% | 79     |
| 17    | 163    | 268.25 | 271.50 | 0.629 | 23.6% | 163 | 3850   | 418  | 64     | 137.75 | 139.00 | -0.372 | 23.6%  | 64    |        |
| 461   | 174    | 236.00 | 239.00 | 0.591 | 22.9% | 174 | 3900   | 40   | 57     | 154.75 | 156.25 | -0.410 | 22.9%  | 57    |        |
| 20    | 1      | 206.25 | 207.75 | 0.551 | 22.4% | 50  | 3950   | 591  | 50     | 173.75 | 175.00 | -0.451 | 22.5%  | 50    |        |
| 94    | 8      | 177.50 | 179.00 | 0.509 | 21.8% | 253 | 4000   | 62   | 2      | 50     | 194.50 | 196.00 | -0.493 | 21.8% | 50     |

**Strategy Builder** ON Strategies

| ACTN                    | RT | LST TRD DAY | STRIKE | TYPE | DELTA  | THETA  | BID/ASK         | SIZE      |         |
|-------------------------|----|-------------|--------|------|--------|--------|-----------------|-----------|---------|
| Buy                     | 1  | MAR 17 '23  | 3900   | Put  | -0.410 | -0.876 | 154.75 x 156.25 | 57 x 57   | Delayed |
| Buy                     | 1  | MAR 17 '23  | 3900   | Call | 0.591  | -0.861 | 236.00 x 239.00 | 174 x 174 | Delayed |
| Mar17 '23 3900 Straddle |    |             |        |      | 0.181  | -1.737 | 390.75 x 395.25 | 57 x 57   | Delayed |

Clear All Legs + PROFILE + Add to Watchlists

BID: 390.75 MID: 395.25 ASK: 395.25

Order Entry LMT QTY 1 LMT PRC 0.00 DAY advanced Margin Impact: n/a Submit Order

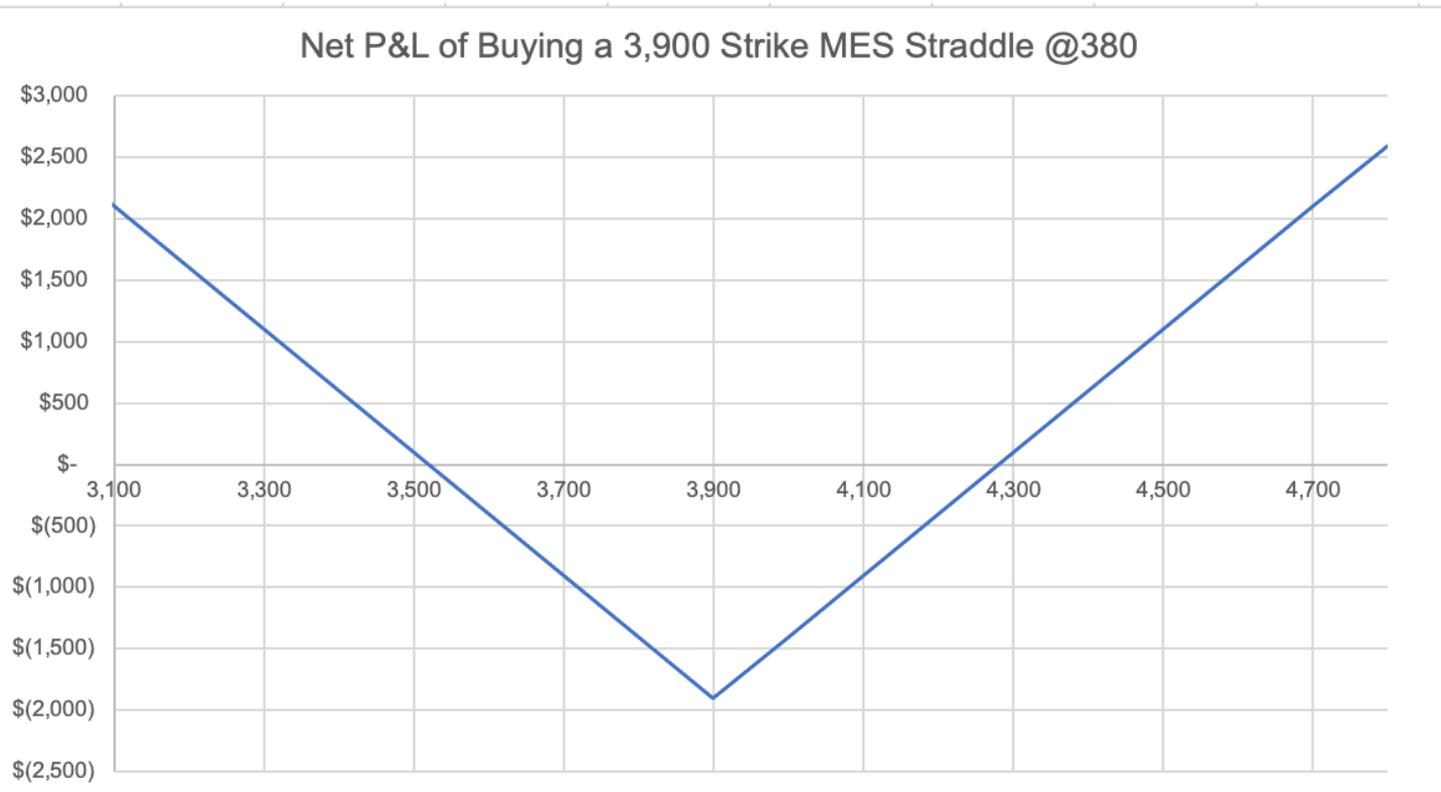
Source: TWS

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# Sample payoff diagram: Near-zero initial delta, high theta

| Final Index Level | P&L        |
|-------------------|------------|
| 4,800             | \$ 2,600   |
| 4,700             | \$ 2,100   |
| 4,600             | \$ 1,600   |
| 4,500             | \$ 1,100   |
| 4,400             | \$ 600     |
| 4,300             | \$ 100     |
| 4,200             | \$ (400)   |
| 4,100             | \$ (900)   |
| 4,000             | \$ (1,400) |
| 3,900             | \$ (1,900) |
| 3,800             | \$ (1,400) |
| 3,700             | \$ (900)   |
| 3,600             | \$ (400)   |
| 3,500             | \$ 100     |
| 3,400             | \$ 600     |
| 3,300             | \$ 1,100   |
| 3,200             | \$ 1,600   |
| 3,100             | \$ 2,100   |
| 3,000             | \$ 2,600   |



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Source: Author's calculation

# Forming your Index Strategy

- Do you have an absolute view on the overall market, or a relative view between two parts of the market (e.g. Growth vs Value, Large vs Small)
- Is your desired exposure linear (futures), or does it cap out at certain levels (options)
- Do you already have a plan for what you will do next after this first futures or options trade expires?

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# Questions?

Contact

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