



# INDEX OPTION NEWBIE GUIDE

指数期权  
新手指引



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# 指数期权 新手指引

2023  
更新  
版本

## SIT-TIGHT 占用50分钟





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## Let's Dive into Index Option

- 交易的前提：了解交易标的 (KYC >>> KYUL)
- 一位投资者咨询过关于 \$VIX 的策略
- 我们将借助指数期权衍生一些内容
- 是新手指引，但不仅适合新手



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## 指数期权/股票期权

- **Index Option: 底层证券 = 指数 (Cash Index)**
- **Stock / ETF Option: 底层证券 = Equity / ETF**



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## 补充关于指数的基础知识

Sound understanding already?  
Switch over to the next section!



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## 何谓指数 (Index)

Hypothetical portfolio of securities that is designed to represent an asset class, market or market segment.

- 一种以小样本观察总体的方式
- 如何近似替代总体 —— 在统计方法上下功夫
  - Price Weighted Approach
  - Market-cap weighted approach
  - Float Adjustment



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## Market-Cap Weighted Approach

- 市值权重法 e.g., S&P500  $\Sigma (\text{Price of the STK} * \# \text{ Shares O/S}) / \text{Divisor}$

1,703	STK 1	STK 2	STK 3	STK 4	STK 5	Index
# Shares O/S	15,000	50,300	40,000	80,000	9,000	
Closing 1	90	48	82	102	203	10,000
Market Cap 1	1,350,000	2,414,400	3,280,000	8,160,000	1,827,000	
Closing 2	95	53	87	107	208	
Market Cap 2	1,425,000	2,665,900	3,480,000	8,560,000	1,872,000	10,570

指数标准化

***Divisor =  $\Sigma(\text{Market Cap 1}) / 10,000$***



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## Price Weighted Approach

- 价格权重法 e.g., DJIA / Nikkei 225  $\Sigma (\text{Price of the STK}) / \text{Divisor}$

0.5250000	STK 1	STK 2	STK 3	STK 4	STK 5	Index
Closing 1	90	48	82	102	203	1,000
Closing 2	99	53	90	112	223	1,100

指数标准化:  $\text{Divisor} = \Sigma(\text{Closing 1}) / 1,000$

- Divisor (most updated) = 0.15172752595384

思考: 如果指数变动6.59, 股票变动多少?





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## 常见宽基指数

- S&P500 (\$SPX)
- Nasdaq100 (\$NDX)
- Dow Jones Industrial Average (\$DJI / \$DJX)
- Russell 2000 (\$RUT)



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## 指数期权“SAM分类法”

### 明星成员

Nasdaq 100 Index Option: \$NDX

Dow Jones Industrial Average: \$DJI

Russell 2000 Index Options: \$RUT

### 超级巨星

S&P500 Index Option: \$SPX

### 主角跟班

Mini S&P500 Index Option: \$XSP

S&P100 Index Options:

① \$OEX (US OPT) / ② \$XEO (EU OPT)

### 跑龙套

市场细分指数 (Segment)

行业细分指数 (Sector)

### Standard & Poor's 500 (\$SPX)

- 股票500强
- 八成美股市值
- 这就是市场

### Nasdaq100 (\$NDX)

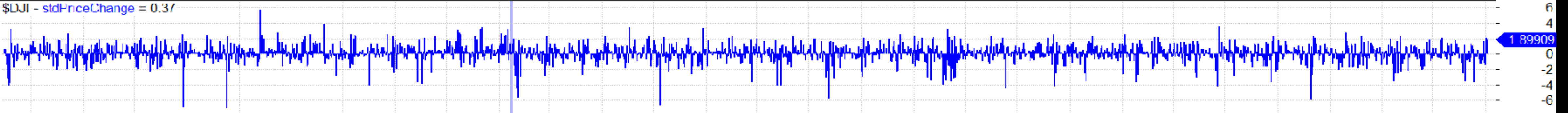
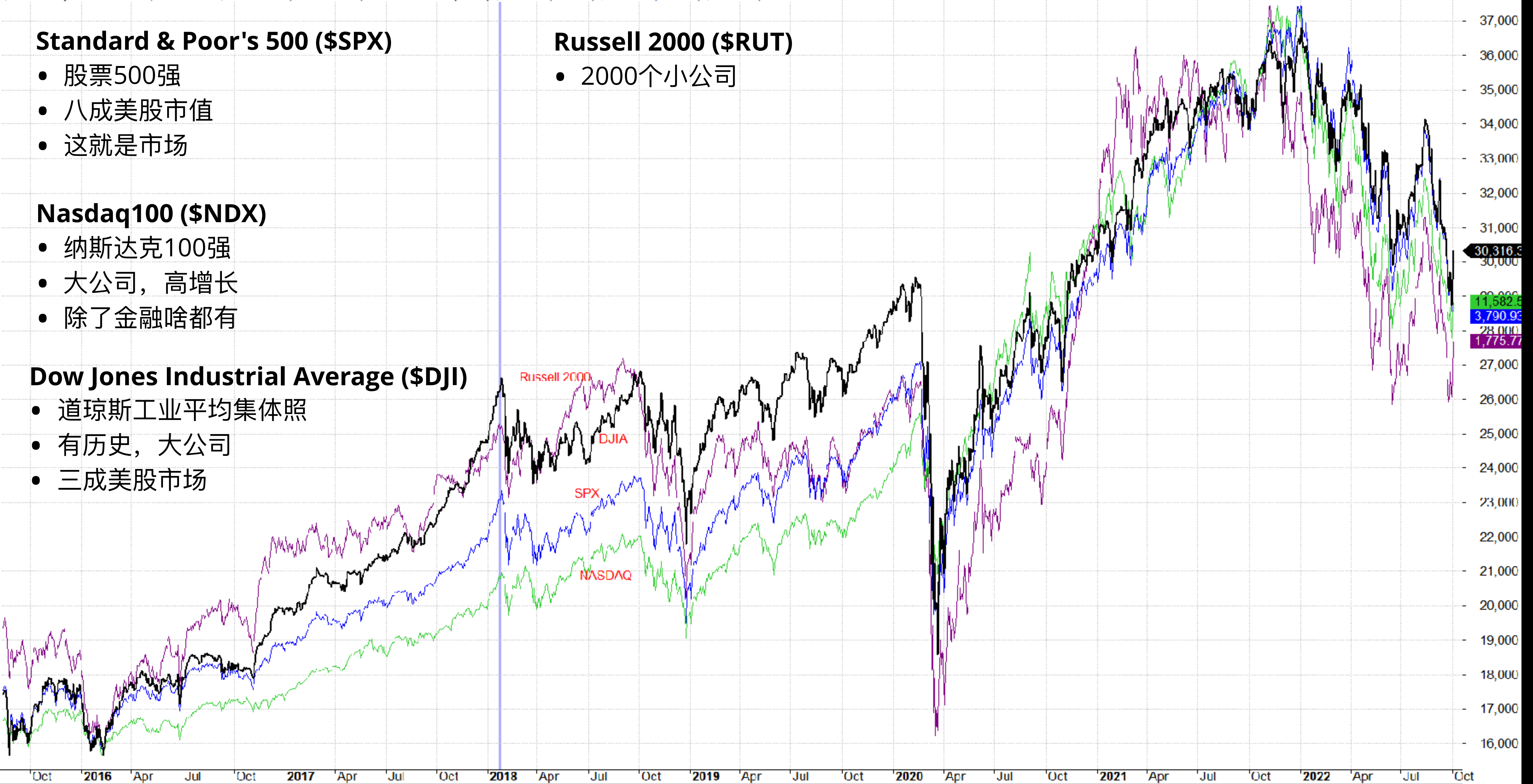
- 纳斯达克100强
- 大公司，高增长
- 除了金融啥都有

### Dow Jones Industrial Average (\$DJI)

- 道琼斯工业平均集体照
- 有历史，大公司
- 三成美股市场

### Russell 2000 (\$RUT)

- 2000个小公司





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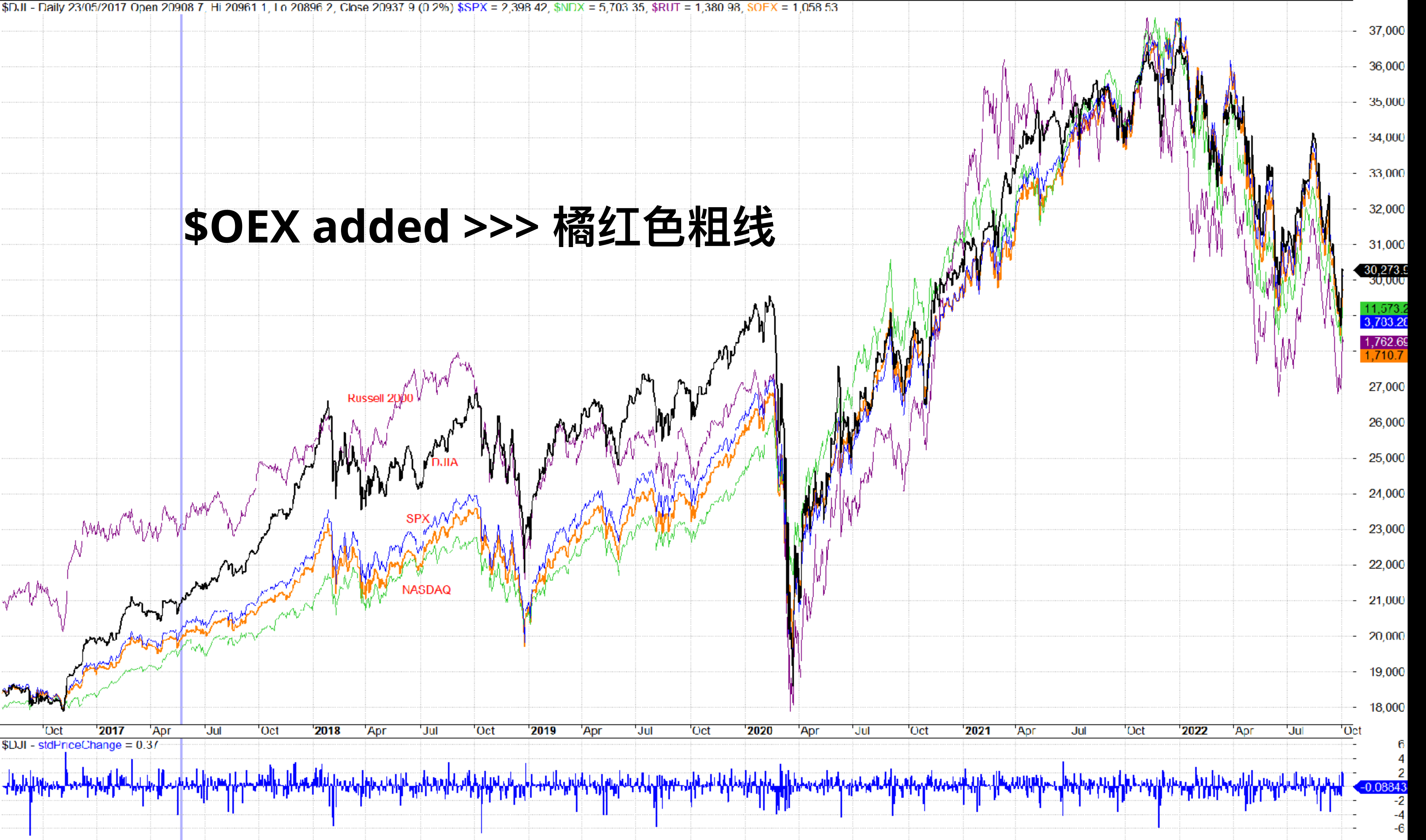
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## 投资者应该选择哪一个

- **Example: FX trader covering all the pairs**  
一顿操作梦如虎，一看还在原地杵
- **Any one to your liking (\$SPX, 永远正确)**  
Basically the same thing (discretionary speaking)

**\$OEX added >>> 橘红色粗线**





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## 股票/指数期权相似之处

- 期权原理不变 ( $S / X / IV / T / R_f / d / \text{Multiplier} = 100$ )
- 基本思路不变
  - 期权价格影响机制
  - 如何使用股票期权，就可以如何使用指数期权
- 了解区别 + 确切需要 = 具备使用指数期权条件



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## 股票/指数期权不同之处

### ● Exercise Style

#### American Option

- 期权持有人可以在到期前任何时刻行权 (Exercise Option)
- 所有股票 / ETF 为底的期权合约都是美式期权

#### European Option

- 期权持有人只能在到期日行权 (Exercise Option)，无指派风险
- 除 \$OEX 之外，所有指数期权都是欧式期权

- 欧式期权提前平仓 vs 美式期权提前平仓
- 思考：是否有明确理由持有底层证券？



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## 股票/指数期权不同之处

- 交割物 (Deliverables)

### American Option

- 实物交割 (Physical)

### European Option

- 现金结算 (Cash Settle)

假设投资者持有 \$SPX Long 3,735 Strike Call  
(Expiration) Settlement Value = 3,740  
Cash Credit =  $(\$3,740 - \$3,735) * 100 = \$500$





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## 股票/指数期权不同之处

- **到期**结算方式 (How it is settled at expiration)

### American Option

- P.M Settlement

### European Option

- P.M and A.M Settlement

- Weekly contract 【P.M】
- Quarterly contract 【P.M】
- Monthly (Standard) contract 【A.M】

### Settlement Value

- 下午确定结算价
- 上午确定结算价



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## 股票/指数期权不同之处

- 以下表格最好永远不要用到

Index	Settlement Symbol for A.M	Expiration Day	Last Trading Day
\$SPX	\$SET	周五	周四
\$NDX	\$XQO	周五	周四
\$DJI / \$DJX	\$DJS	周五	周四
\$RUT	\$RLS	周五	周四



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## 他们都是有关「指数」之期权

- Index Option
- Index-Based ETF Option

Index	ETF	Contract Size*	Liquidity
\$SPX	\$SPY	1/10th of \$SPX Option	思考：谁的流动性更好？
\$NDX	\$QQQ	1/40th of \$NDX Option	
\$DJI / \$DJX	\$DIA	1/10th of \$DJI Option	
\$RUT	\$IWM	1/10th of \$RUT Option	

SPY Calls and Puts 372.19 -4.90 (-1.30%)

Expand All LIST VIEW 6 STRIKES 3 MONTHS SMART SPY 100

CALLS										DESCRIPTION	PUTS											
OPTN ...	VOLU...	BID	ASK	MARK	TIME	VALUE (%)	DELTA	THETA	IV	CLOSE	STRIKE	IV	CLOSE	THETA	DELTA	TIME	VALUE (%)	MARK	BID	ASK	VOLU...	OPTN ...
											▶ OCT 17 '22 (10 DAYS)	IV: 29.0%										
											▼ OCT 19 '22 (12 DAYS)	IV: 28.4%										
1.01K	75	9.82	9.89	11.95	6.75	(55.16%)	0.563	-0.323	30.345%		370	28.324%	-0.293	-0.439	6.46	(52.79%)	5.05	6.46	6.51	1.33K	2.93K	
				11.60			0.543	-0.323	28.409%		371	28.317%	-0.293	-0.459			5.09					
1.12K	429	8.65	8.71	10.63	7.58	(61.94%)	0.523	-0.322	29.219%		372	28.219%			7.29	(59.58%)	5.72	7.29	7.34	459	565	
				10.25			0.502	-0.321	28.641%		373	27.977%	-0.290	-0.500			5.74					
1.44K	1.12K	7.55	7.61	9.39	7.55	(61.70%)	0.482	-0.316	28.933%		374	27.468%	-0.286	-0.521	7.25	(59.26%)	6.49	8.18	8.24	758	883	
1.06K	1.63K	7.03	7.08	8.79	7.03	(57.45%)	0.460	-0.312	28.953%		375	27.504%	-0.282	-0.542	6.73	(55.01%)	6.89	8.66	8.72	1.04K	1.18K	
											▼ OCT 21 '22 (14 DAYS)	IV: 27.9%										
45.1K	4.16K	10.55	10.61	10.65	7.48	(52.39%)	0.561	-0.305			370		-0.275	-0.441	7.09	(49.66%)	7.13	7.09	7.13	34.0K	94.3K	
8.02K	598	9.95	10.01	10.05	7.88	(55.19%)	0.542	-0.304			371		-0.274	-0.459	7.49	(52.47%)	7.49	7.49	7.54	3.02K	22.0K	
8.13K	4.04K	9.39	9.43	9.42	8.32	(58.27%)	0.524	-0.304			372		-0.274	-0.478	7.92	(55.48%)	7.90	7.92	7.96	4.98K	33.1K	
6.59K	4.93K	8.82	8.87	8.86	8.75	(61.29%)	0.505	-0.303			373		-0.272	-0.497	8.35	(58.49%)	8.33	8.35	8.40	4.62K	22.0K	
5.72K	11.1K	8.28	8.32	8.31	8.28	(58.00%)	0.486	-0.299			374		-0.268	-0.516	7.87	(55.14%)	8.72	8.80	8.85	8.50K	18.8K	
31.7K	24.1K	7.75	7.79	7.77	7.75	(54.29%)	0.467	-0.295			375		-0.265	-0.536	7.35	(51.49%)	9.25	9.28	9.32	29.8K	99.1K	
											▶ OCT 24 '22 (17 DAYS)	IV: 26.6%										
											▶ OCT 26 '22 (19 DAYS)	IV: 26.9%										

SPX INDEX Calls and Puts 3744.52 -38.76 (-1.02%)

Expand All LIST VIEW 6 STRIKES 3 MONTHS SMART TRADING CLASS 100

CALLS										DESCRIPTION	PUTS											
OPT...	VLM	BID	ASK	MARK	TIME	VALUE (%)	DELTA	THETA	IV	CLO...	STRIKE	IV	CLO...	THETA	DELTA	TIME	VALUE (%)	MARK	BID	ASK	VLM	OPT...
											▶ OCT 18 '22 (SPXW) (11 DAYS)	IV: 27.3%										
											▼ OCT 19 '22 (SPXW) (12 DAYS)	IV: 27.5%										
63		85.00	86.20	86.2	70.40	(57.18%)	0.537	-3.210	15.28...		3730	27.02...	-2.886	-0.463	71.90	(58.40%)	71.9	71.90	73.10		100	37
43		82.30	83.40	83.4	72.70	(59.05%)	0.527	-3.198	30.73...		3735	25.61...	-2.873	-0.473	74.10	(60.19%)	74.1	74.10	75.30			26
30		79.60	80.60	80.6	75.00	(60.92%)	0.517	-3.192	30.954%		3740	23.08...	-2.867	-0.483	76.30	(61.98%)	76.3	76.30	77.50			30
13		76.90	77.90	77.9	76.90	(62.46%)	0.506	-3.180	31.37...		3745	25.870%	-2.854	-0.494	78.20	(63.52%)	78.6	78.60	79.80			93
48	3	74.20	75.20	75.2	74.20	(60.27%)	0.496	-3.167	29.70...		3750	27.82...	-2.841	-0.504	75.50	(61.33%)	80.9	80.90	82.10			79
70		71.60	72.60	72.6	71.60	(58.16%)	0.486	-3.152	32.58...		3755	34.20...	-2.825	-0.514	73.00	(59.30%)	83.4	83.40	84.50			31
											▼ OCT 20 '22 (SPX) (13 DAYS)	IV: 27.9%										
536		90.10	91.50	91.5	75.50	(56.61%)	0.537	-3.047	14.07...		3730	28.66...	-2.722	-0.463	76.30	(57.21%)	76.55	76.30	77.70		3	671
965	38	87.30	89.00	89.0	77.70	(58.26%)	0.528	-3.038	21.40...		3735	28.38...	-2.714	-0.472	78.20	(58.63%)	78.6	78.20	79.80			1.04K
216	2	84.50	85.90	85.9	79.90	(59.91%)	0.518	-3.029	23.875%		3740	28.52...	-2.703	-0.482	80.60	(60.43%)	80.6	80.60	82.10			1.61K
510	3	81.80	83.40	83.4	81.80	(61.33%)	0.509	-3.021	28.30...		3745	25.956%	-2.695	-0.491	82.50	(61.86%)	82.9	82.90	84.30		2	1.24K
7.67K	51	79.10	80.70	80.7	79.10	(59.31%)	0.500	-3.010	29.57...		3750	27.06...	-2.683	-0.500	79.80	(59.83%)	85.2	85.20	86.60		39	29.6K
604	19	76.50	78.10	78.1	76.50	(57.36%)	0.490	-2.996	29.13...		3755	27.87...	-2.669	-0.510	77.20	(57.88%)	87.6	87.60	89.00		3	1.07K
											▶ OCT 20 '22 (SPXW) (13 DAYS)	IV: 27.9%										

\$SPY  
\$SPX



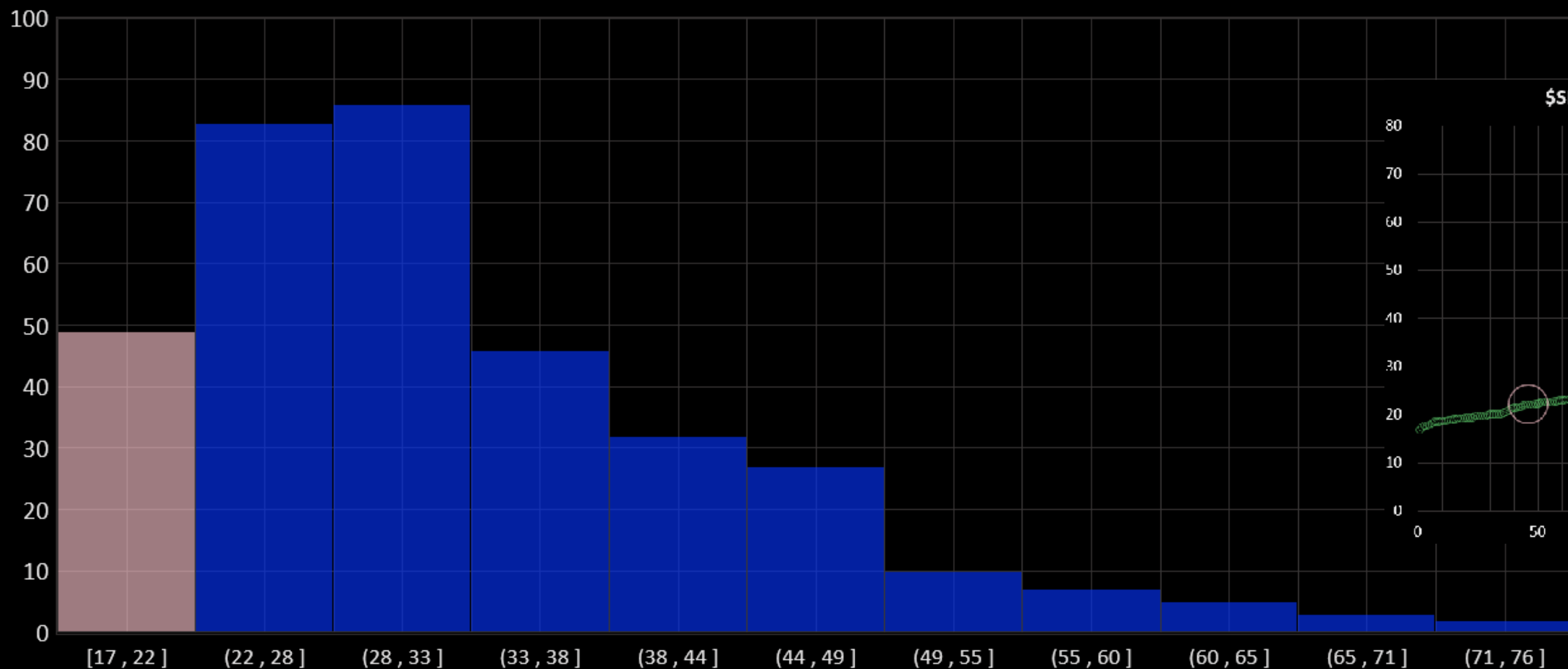
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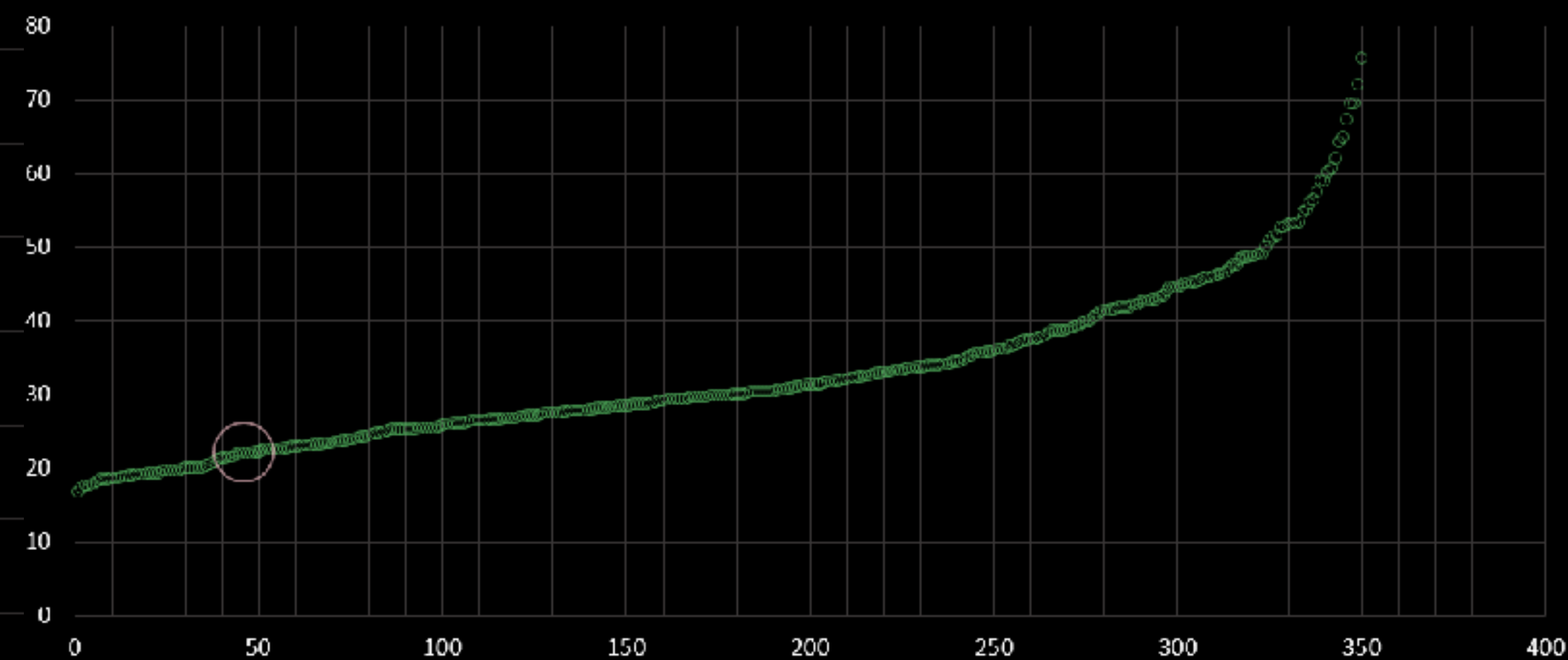
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## 股票/指数期权不同之处

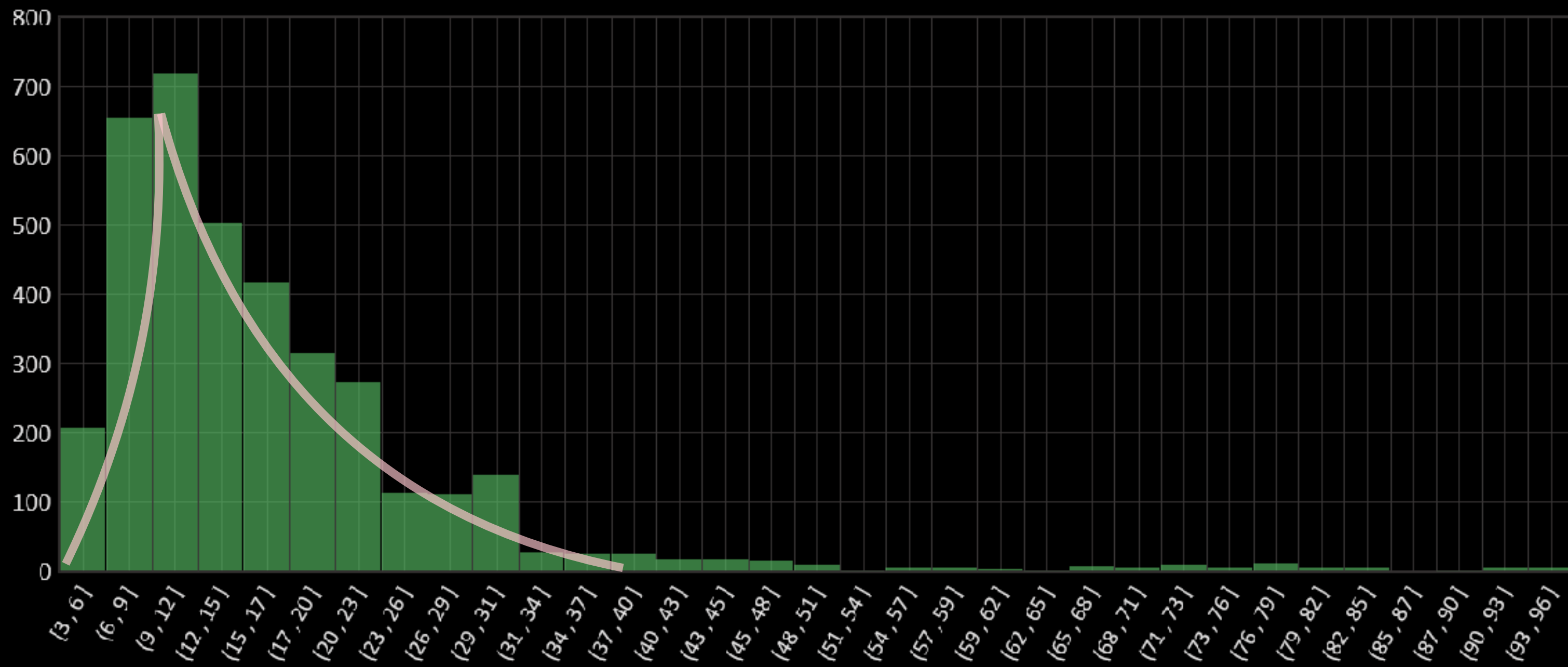
\$SPX Ranking in avgHistorical Volatility (21D, Annualized, 252D Smoothing)



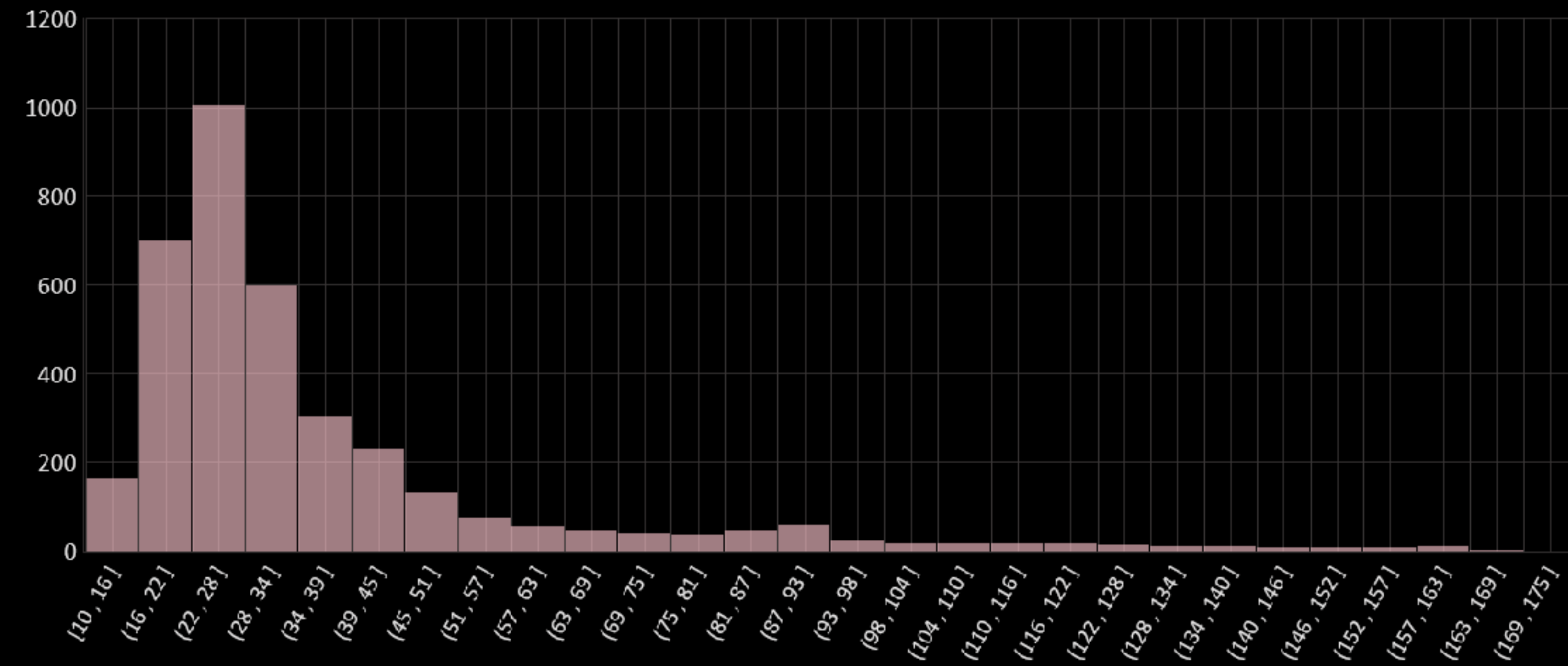
\$SPX Ranking in avgHistorical Volatility (21D, Annualized, 252D Smoothing)



\$SPX Historical Volatility (21D, Annualized)

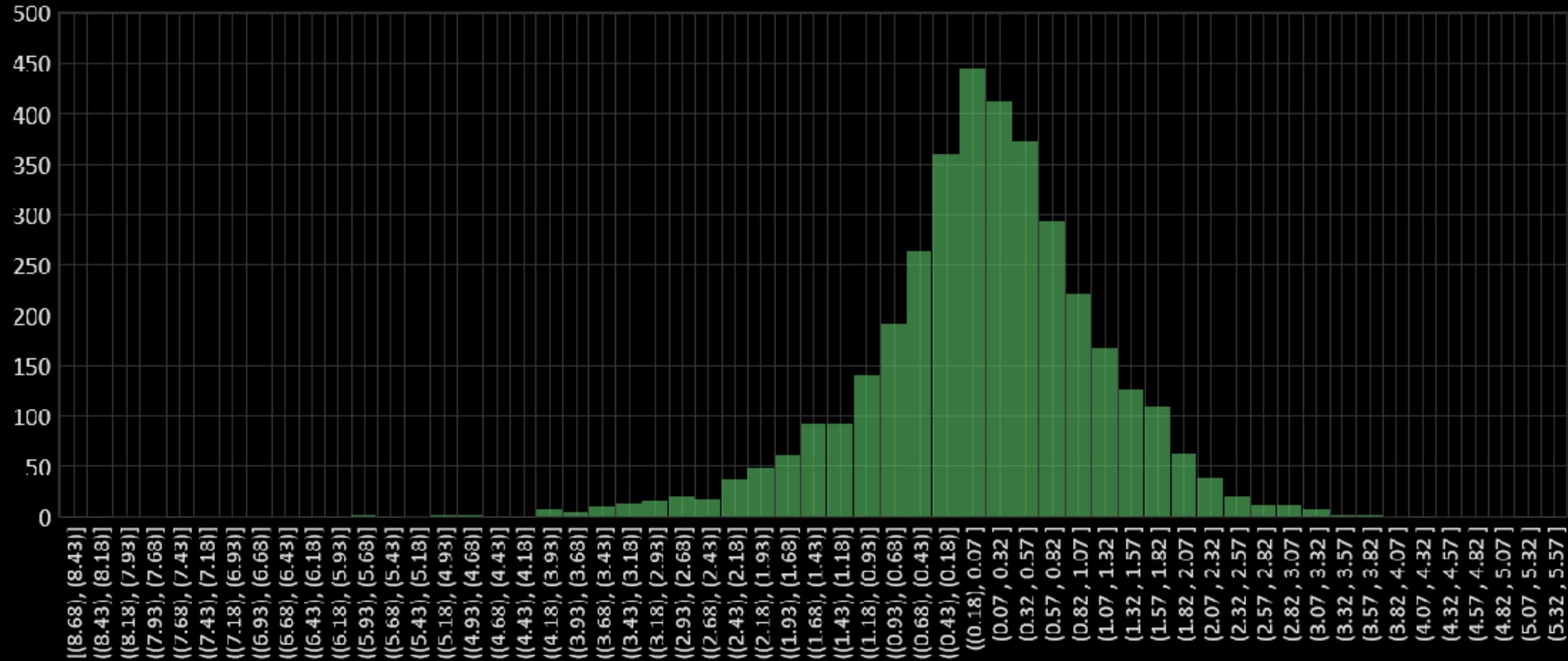


\$PARA Historical Volatility (21D, Annualized)

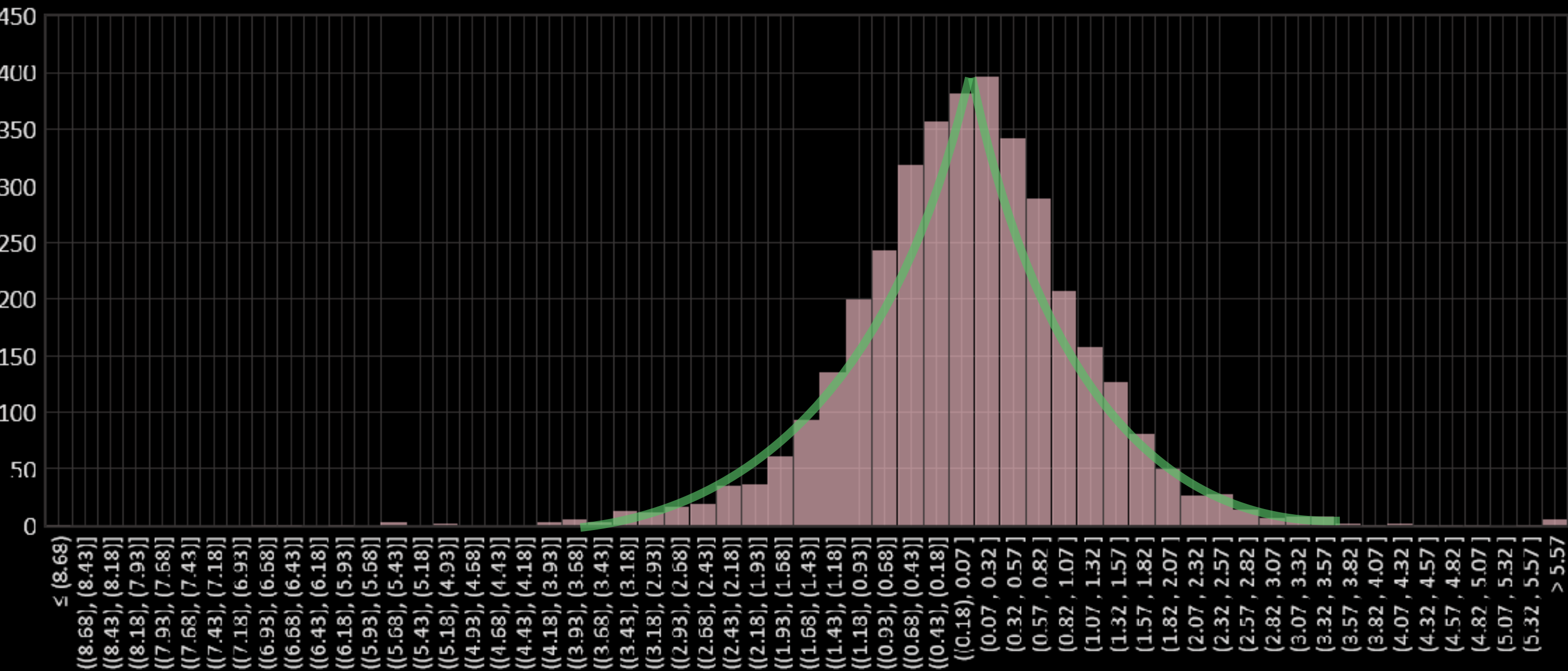


# 历史波动率 两端代表对比

\$SPX - The Extent of Surprise



\$PARA - The Extent of Surprise



创造“惊喜”能力  
两端代表对比



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## 股票/指数期权不同之处

- **Index Option 对于 US-People 具有天然税务优势**

Section 1256 - Form 6781

- **参考视频：UBS期权之殇，谁之过（个人投资者和财富管理机构的微妙关系）**

- 和金融机构打交道，如果懂得不够多，就要付出代价







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## 补充关于投资者税务的「碎片」知识

FYI only!

This is not advisory information.

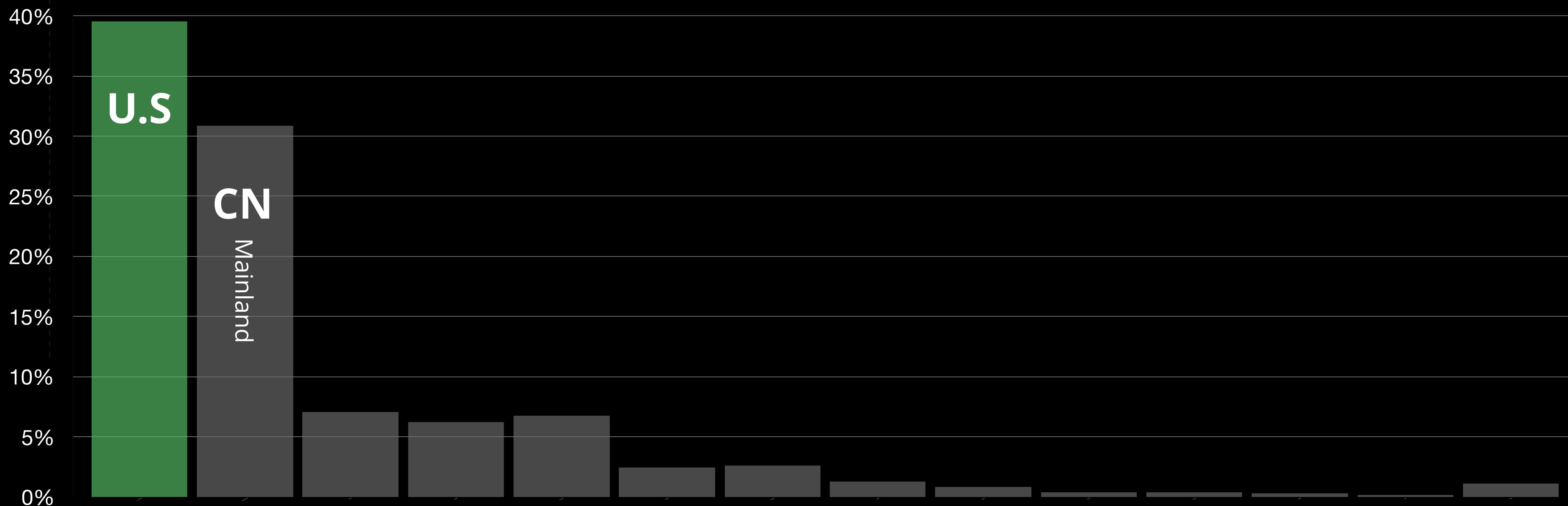


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## Divert a Little Bit...on Investor Tax





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## Divert a Little Bit...on Investor Tax

### ● US-Person / Non-US-Person

- |            |                    |
|------------|--------------------|
| 1. 美国公民    | 1. 外国人，与美国无关（偶尔旅游） |
| 2. 持绿卡     | 2. 在美留学生、教职人员      |
| 3. 长期混迹于美国 | <b>如有必要，咨询你的券商</b> |



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## Investment Income for Non-US-Person

- **Withholding Tax (代扣代缴税款) - WHT**
  - 工资发放
  - 外商投资企业利润汇回
  - PowerUpGammas School 代缴销售税
- **非美投资者主要涉及什么收入 (不完整清单)**
  - Dividend Income: 10% ~ 25% (30%)
  - Interest income from US bond
  - Free cash interest yield
  - Proceeds from sales of securities



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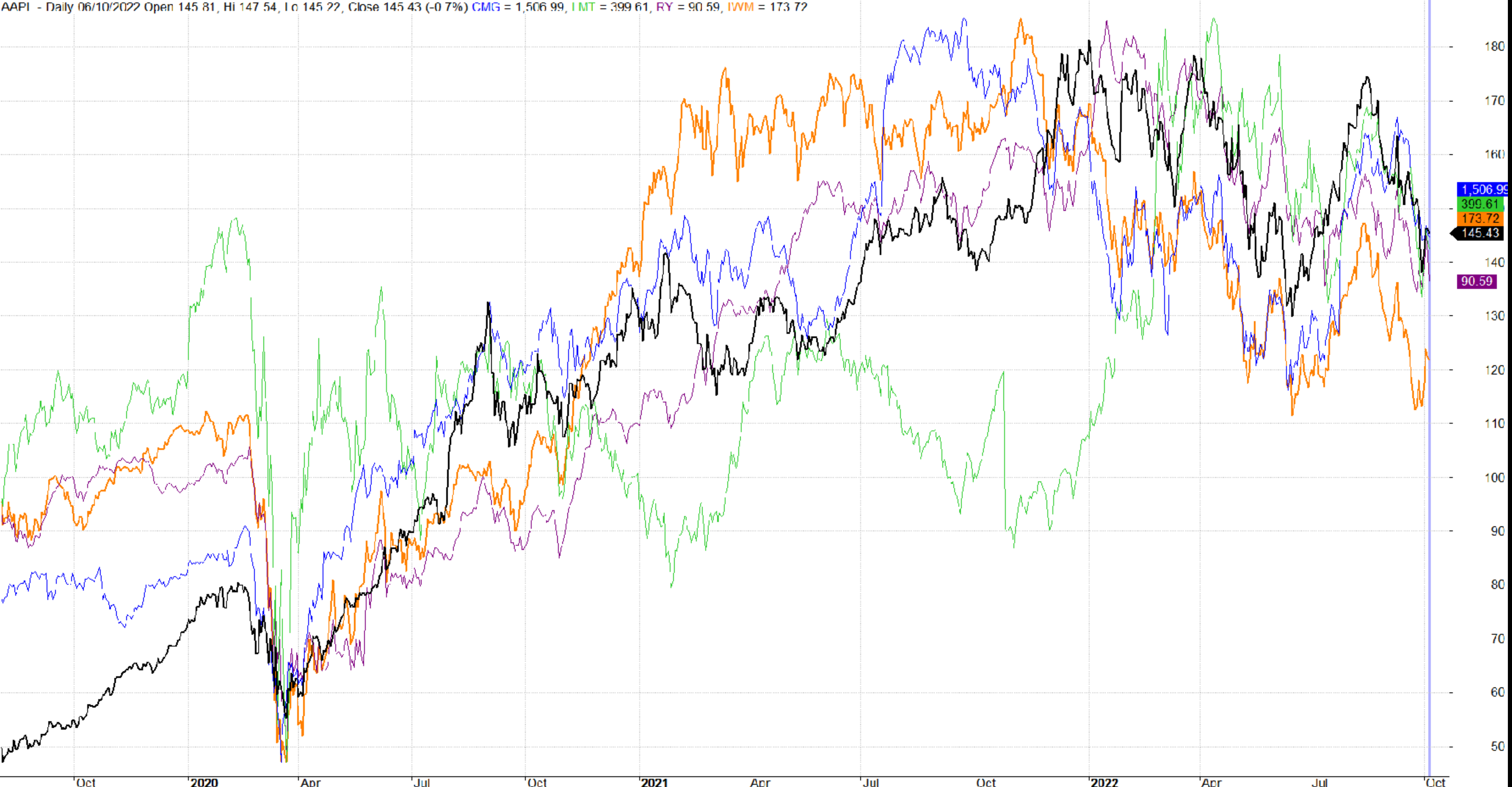
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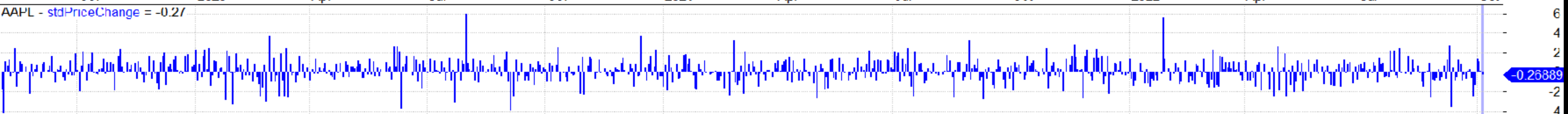
## Being the Hedger

- 与使用其他标的对冲没有区别
- 举一个极其简单的例子，说明思考框架

AAPL - Daily 06/10/2022 Open 145.81, Hi 147.54, Lo 145.22, Clse 145.43 (-0.7%) CMG = 1,506.99, IMT = 399.61, RY = 90.59, IWM = 173.72



AAPL - stdPriceChange = -0.27



# Being the Hedger

SPX INDEX Calls and Puts 3744.52 -38.76 (-1.02%)

Expand All LIST VIEW 6 STRIKES 3 MONTHS SMART TRADING CLASS 100

CALLS										DESCRIPTION	PUTS											
DPTN...	VLM	BID	ASK	MARK	TIME	VALUE (...)	DELTA	THETA	IV	CLO...	STRIKE	IV	CLO...	THETA	DELTA	TIME	VALUE (...)	MARK	BID	ASK	VLM	OPTN...
											▶ OCT 13 '22 (SPXW) (6 DAYS)											
											▶ OCT 14 '22 (SPXW) (7 DAYS)											
											▶ OCT 17 '22 (SPXW) (10 DAYS)											
											▶ OCT 18 '22 (SPXW) (11 DAYS)											
											▼ OCT 19 '22 (SPXW) (12 DAYS)											
63		85.40	86.50	86.5	70.88	(57.58%)	0.539	-3.210	15.280%		3730	27.027%	-2.885	-0.461	71.70	(58.24%)	71.8	71.70	72.70	100		37
43		82.80	83.70	83.7	73.28	(59.53%)	0.528	-3.199	30.730%		3735	25.617%	-2.874	-0.472	73.90	(60.03%)	73.95	73.90	74.90			26
30		80.00	80.90	80.9	75.48	(61.31%)	0.518	-3.192	30.954%		3740	23.089%	-2.866	-0.482	76.10	(61.82%)	76.1	76.10	77.20			30
13		77.10	78.20	78.2	77.10	(62.63%)	0.508	-3.181	31.373%		3745	25.870%	-2.855	-0.492	77.92	(63.29%)	78.4	78.40	79.40			93
48	3	74.40	75.50	75.5	74.40	(60.43%)	0.498	-3.168	29.709%		3750	27.820%	-2.842	-0.502	75.22	(61.10%)	80.7	80.70	81.80			79
70		71.80	72.90	72.9	71.80	(58.32%)	0.487	-3.153	32.582%		3755	34.206%	-2.827	-0.513	72.52	(58.91%)	83.0	83.00	84.10			31

Ticker	Price	# Shares	MKT Value	Nominal Value
\$AAPL	\$145	1240	\$180,333	\$753,833
\$CMG	\$1,506	150	\$225,900	
\$LMT	\$400	600	\$240,000	
\$RY	\$91	800	\$72,800	
\$RUT	\$174	200	\$34,800	

Hedging Ticker	Strike	Multiplier	Nominal Value
\$SPX	\$3,740	100	\$374,000
#Contract to Hedge			2
Premium			76
Hedging Cost		\$15,319	2.0%

Insurance = 全部头寸被抹去

Add your ingredients >>> 思考:

- 如果只想对冲 Portfolio 其中一部分风险暴露
- 如果觉得对冲成本过高, 可以如何处理
- 如何平衡期权收益的曲线问题 (不完整对冲)
- 如何处理资产与\$SPX的不同相关性
- 公式显示的合约数量, Over-hedge or Under-hedge



# INDEX OPTION NEWBIE GUIDE

# 指数期权 新手指引

2023  
更新  
版本

## Let's Wrap It Up...

- **指数的基础知识——Knowing what you are trading**
  - 思考：\$VIX 期权底层标的是什么？
- **指数期权和股票期权的相似/不同点**
- **指数期权用途：独立交易 / 对冲——Pick any one to your liking**
- **了解区别 + 确切需要 = 具备使用指数期权条件**

“不打无准备之仗”

- What for?
- Account size?
- Review “Product Specifications”
- Double check the liquidity

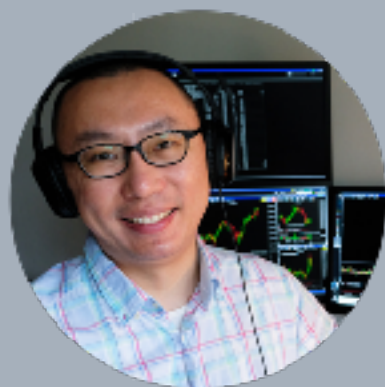




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## PowerUpGammas SCHOOL



**OPTION**  
CRASH COURSE 期权破冰课

研修·期权投资策略  
OPTION AS A STRATEGIC INVESTMENT

**OASI**

OPTION  
AWARENESS  
**BUILDER**

**GAMMAS**  
TECHNICAL  
**LAB**  
技术分析实验室

QUANTITATIVE DATA ANALYSIS 101  
定量数据分析入门

**GAMMAS**  
TECHNICAL  
**SPECIAL** 定量专题系列 | 001

**IBKR**  
POWER COURSE  
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OCC / OASI 打包购买 享受折扣

**BUNDLE**  
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