

# Change and Feature of Margin Level Associated with the Change of Margin Calculation Method (SPAN Method to VaR Method)

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Japan Securities Clearing Corporation



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# Comparison between SPAN Method and VaR Method

- JSCC will change Margin calculation method from “SPAN method” to “VaR method” scheduled for November 6, 2023 (Mon.).

Point of Change	Current (SPAN Method)	VaR Method	
		HS-VaR Method	AS-VaR Method
i) Margin Different between Short and Long	Same amount for Short and Long	<b>Different amount</b> for Short and Long	Same amount for Short and Long
ii) Margin Different by Contract Month	Same amount for all contract months in principle	<b>Different amount</b> by contract month	Same amount for all contract months
iii) Margin Calculation Parameter Update/ Publication Frequency	Last Business Day of each Week Early - around 17:00 Final - around 18:00	<b>Every Day</b> Around 15:45 - 16:00	Last Business Day of each Week Around 17:00
iv) Margin Calculation Parameter Application Timing	Next Week of Publication	<b>Date of</b> Publication	Next Week of Publication
v) Margin Reference File Posting Timing	—	<b>Every Day</b> Around 16:15	
vi) Products	All Products	Nikkei 225, TOPIX, JGB, Electricity, LNG, etc.	Precious Metals, Crude Oil, Rubber, Agricultural Products, etc.

- This material explains how Margin level’s change and its characteristics (trend) after VaR Method introduction based on the simulation results.

\* Each Broker will decide its handling of the amount of Margin to investors independently based on the Margin requirement JSCC notifies the Brokers. So, the Margin requirement JSCC calls for the Brokers and the amount of Margin Brokers require for investors to deposit may be different.

# Summary (Change and Feature of Margin Level)

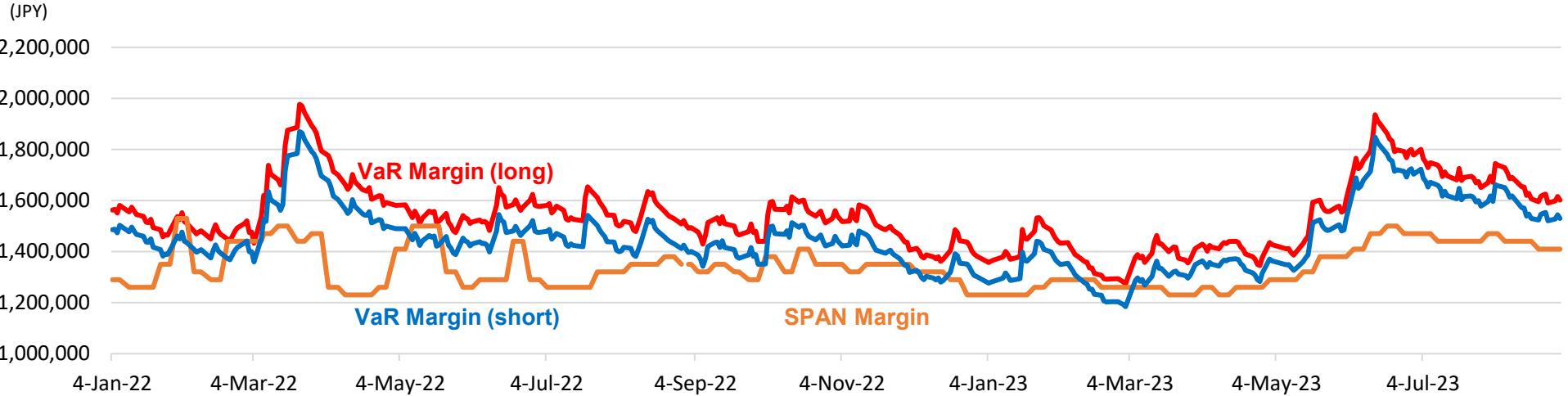
#	Item	Change in Margin level and its characteristics (trend)	
1	Margin per 1 outright Futures contract	VaR Method calculates Margin by long/short position.	<ul style="list-style-type: none"> <li>Margin for long position shows the trend to be higher than that for short position</li> <li>For TSE Mothers Index Futures* and 10-year JGB Futures, margin for short position at recent level decreases by around 10% .</li> </ul>
2	Margin per 1 outright short Options contract	Elaborated scenario	<ul style="list-style-type: none"> <li>By adding stress scenarios and alike, margin for out-of-the-money issues tends to increase compared to SPAN.</li> </ul>
3	Margin by each contract month	Elaborated margin calculation by each contract month.	<ul style="list-style-type: none"> <li>Margin for near contract month shows the trend to be low for Index Futures and Index Options.</li> </ul>
4	Margin for combination position	Elaborated Risk Offset	<ul style="list-style-type: none"> <li>Nikkei 225 Futures combined with TSE Mothers Index Futures* reduces margin amount drastically.</li> <li>Depending on type of combination, margin amount for Index Options decreases.</li> </ul>
5	Products to apply Risk Offset	Newly covered combination to apply Risk Offset	<ul style="list-style-type: none"> <li>TSE REIT Index Futures and Nikkei VI Futures combined with Nikkei 225 Futures and the like reduces margin amount drastically.</li> <li>Combination of LNG Futures with Electricity Futures reduces margin amount.</li> </ul>
6	Expansion of Scope of Risk Offset in Electricity Futures		<ul style="list-style-type: none"> <li>Depending on type of combination between west/east area or different contract months, margin amount decreases.</li> </ul>
7	Change of Calculation Unit for Position with Options		<ul style="list-style-type: none"> <li>For position with large long option position, the level of margin requirement under VaR Method may vary from that under SPAN Method.</li> </ul>

\* Scheduled to be renamed as “TSE Growth Market 250 Index Futures” from Nov. 6, 2023.

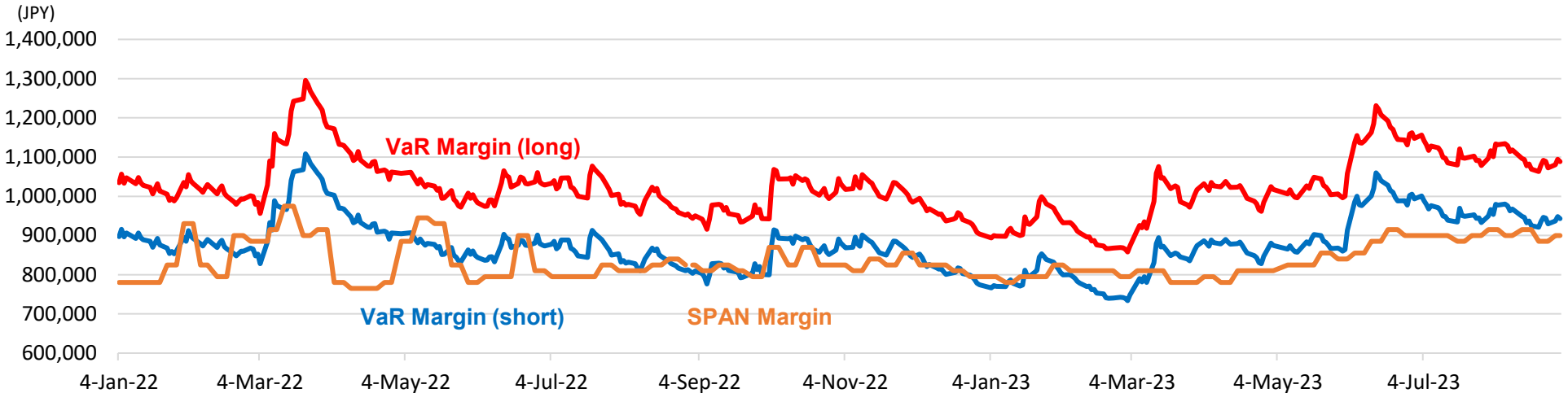
# 1. Margin Level per 1 Outright Futures Contract (1)

- VaR Method calculates margin for each long/short position.
- For Nikkei 225 and TOPIX futures, margin for long position tends to be higher than that for short position
- By adding stress scenarios and alike, margin of outright 225 Futures increases by 10% at recent level.

**Nikkei Futures nearest contract month (Margin amount in time series)**



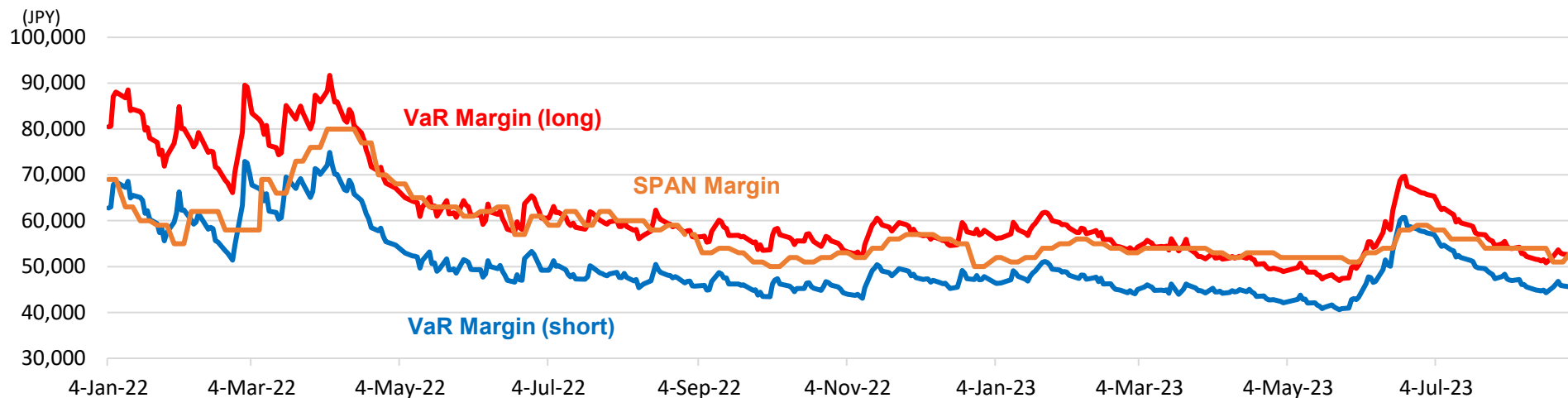
**TOPIX Futures nearest contract month (Margin amount in time series)**



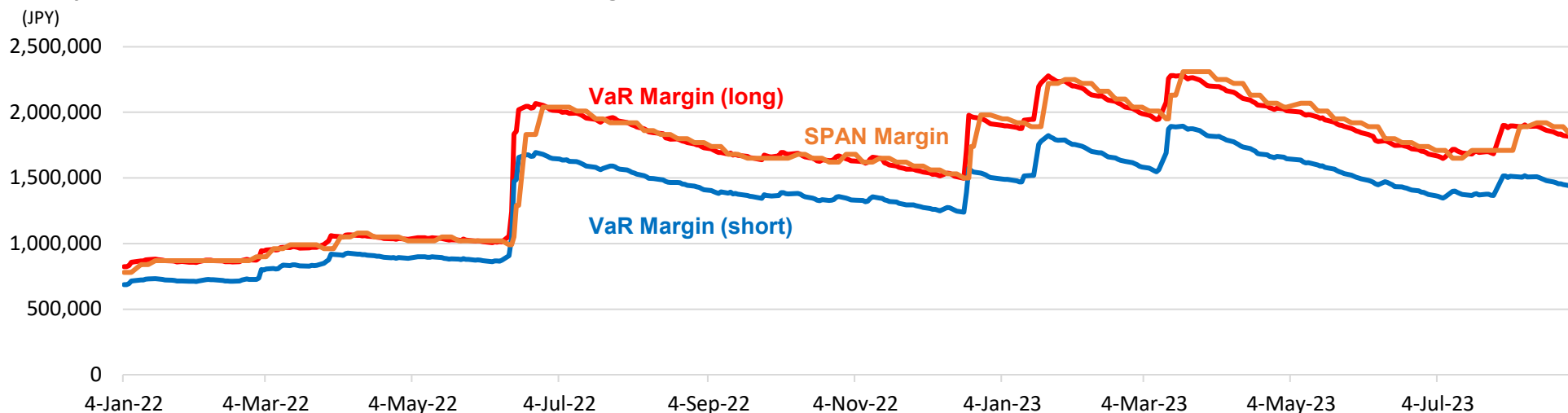
# 1. Margin Level per Outright 1 Futures Contract (2)

- For TSE Mothers Index (TSE Growth Market 250 Index) Futures and 10-year JGB Futures, margin for short position shows the trend that it decreases by 10% if calculated under VaR Method.

**Mothers (Growth 250) Futures nearest contract - Margin amount in time series**



**10-year JGB Futures nearest contract month - Margin amount in time series**



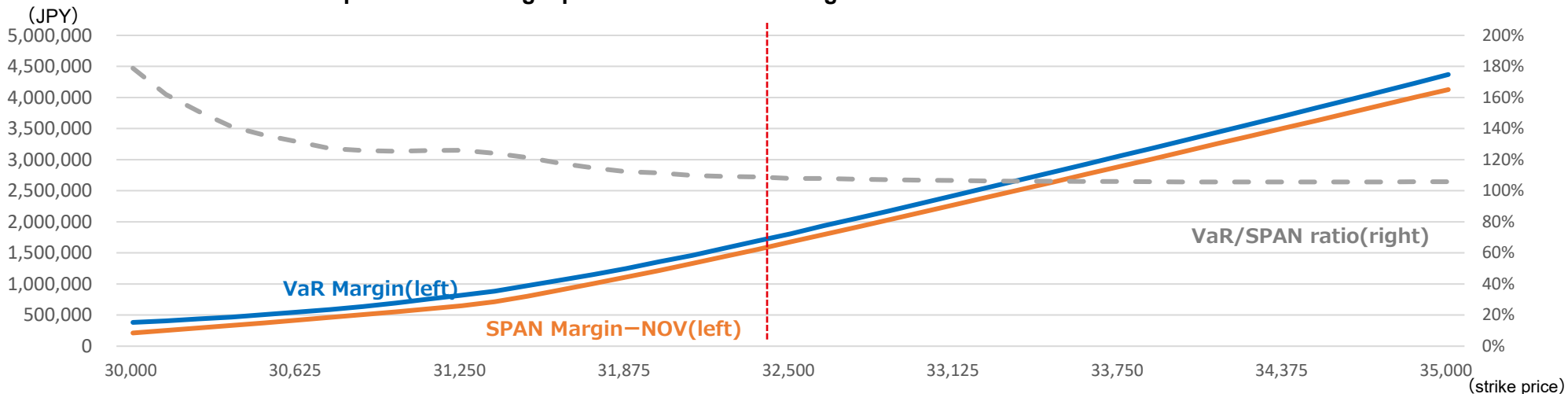
## 2. Margin Level per Outright 1 Short Options Contract

- In VaR Method, scenarios for margin calculation (underlying price & volatility changes) are elaborated for each issue.
- By adding stress scenarios and alike, margin for out-of-the-money issues tends to increase compared to SPAN.

**Case: Short 1 for Nikkei 225 Sep-2023 Call: Margin per Strike Price as of Aug. 30**

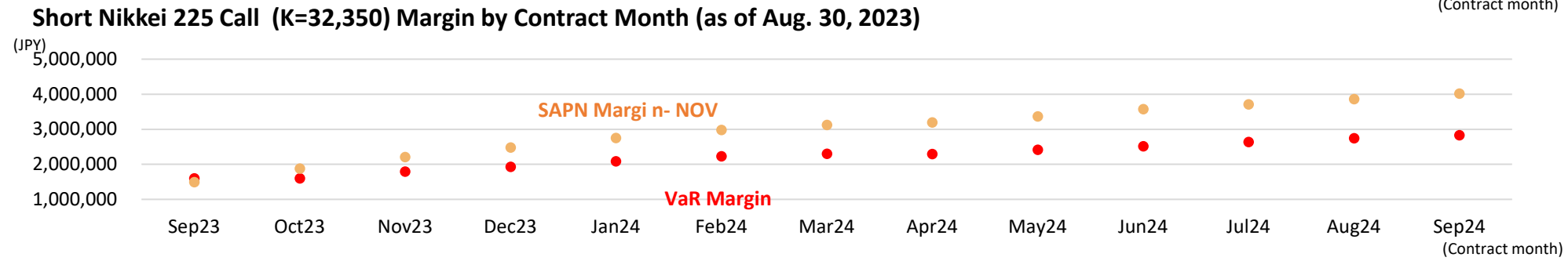
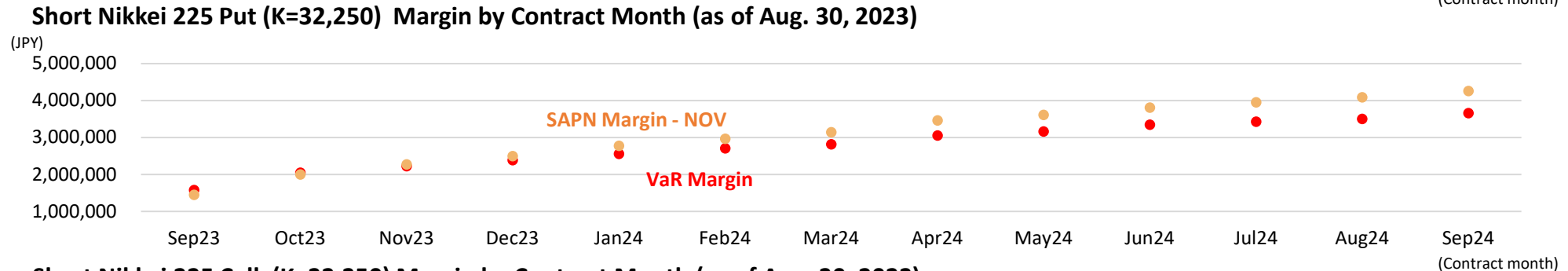
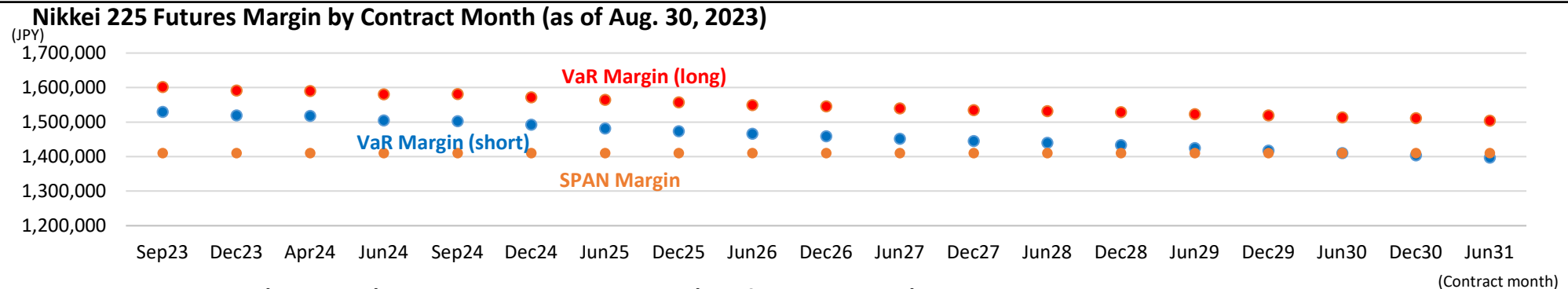


**Case: Short 1 for Nikkei 225 Sep-2023 Put : Margin per Strike Price as of Aug. 30**



### 3. Margin Level by Each Contract Month (Index Futures/Options)

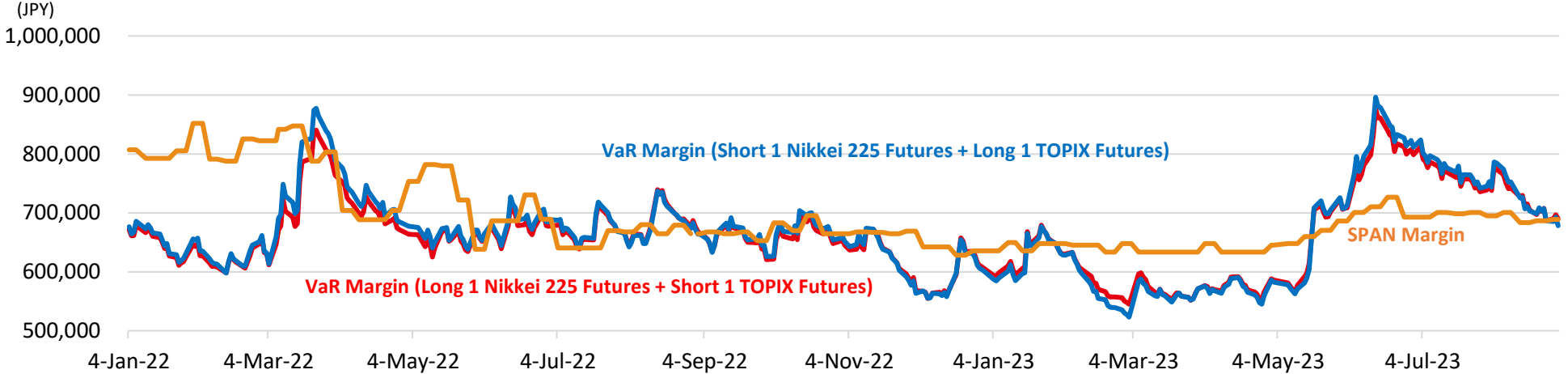
- VaR Method calculates margin by each contract month in an elaborated manner.
- As a result, margin for far contract month shows the trend to be low because Index Futures' price for far contract month becomes cheaper than that for near contract month's price.
- As Index Option's volatility scenario is elaborated, margin for near contract month shows the trend to be lower than that calculated under SPAN Method.



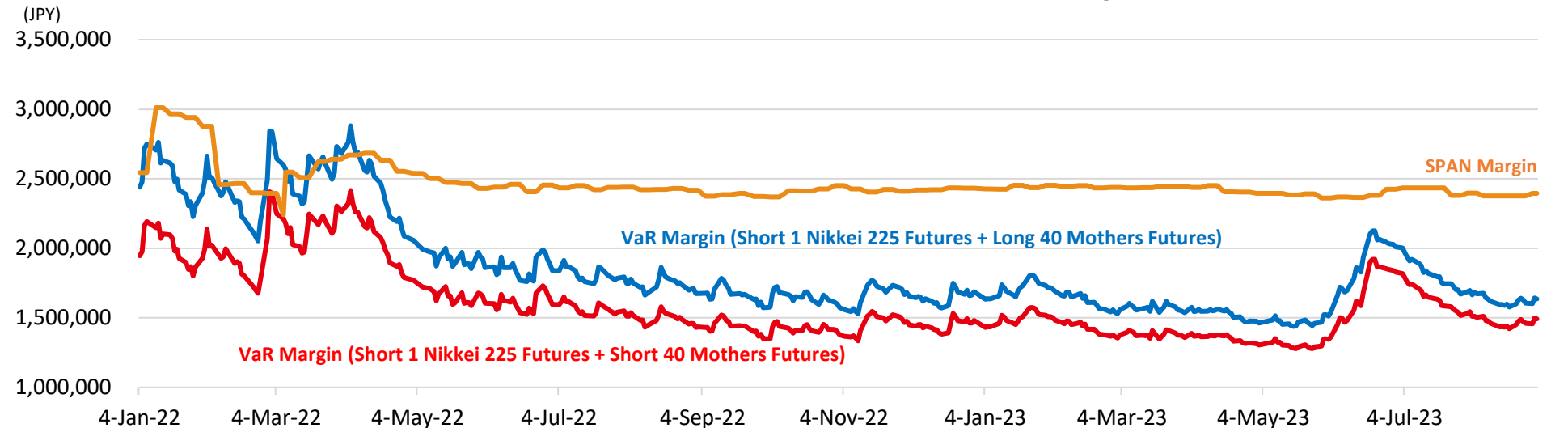
# 4. Margin Level for Futures Combination Position

- In VaR Method, Risks Offset between different products is made through calculation of profit/loss based on historical data.
- Due to the elaborated Risk Offset, a combination of Nikkei 225 Futures with TSE Mothers Index Futures (TSE Growth Market 250 Index Futures) especially shows the trend to reduce margin amount drastically.

**Case: Long 1 Nikkei 225 Futures nearest contract month + Long 1 TOPIX Futures nearest contract month (Margin amount in time series)**



**Case: 1 Nikkei 225 Futures + 40 Mothers (TSE Growth Market 250) nearest contract month (Margin amount in time series)**





## 4. Margin Level for Options Combination Position

- Elaboration of scenarios shows the trend to lower margin than that calculated by SPAN Method, depending on type of product combination (for certain type of combination, margin becomes high).

Simulation as of Aug. 30. - Nikkei 225 Index closing: JPY 32,333

Strategy	Portfolio	SPAN method (JPY)	VaR Method (JPY)
Vertical Bear Put Spread	Long 1 Sep-23 Nikkei 225 Put Option K=31,375 Short 1 Sep-23 Nikkei 225 Put Option K=30,375	22,000	0
Long Butterfly (Put)	Short 1 Sep-23 Nikkei 225 Put Option K=32,375 Long 2 Sep-23 Nikkei 225 Put Option K=33,375 Short 1 Sep-23 Nikkei 225 Put Option K=34,375	745,000	553,684
Calendar Spread	Short 1 Sep-23 Nikkei 225 Call Option K=32,375 Long 1 Oct-23 Nikkei 225 Call Option K=32,375	217,027	0
Short Straddle	Short 1 Sep-23 Nikkei 225 Call Option K=32,375 Short 1 Sep-23 Nikkei 225 Put Option K=32,375	1,649,000	1,841,170
Short Strangle	Short 1 Sep-23 Nikkei 225 Call Option K=33,375 Short 1 Sep-23 Nikkei 225 Put Option K=31,375	766,000	989,962

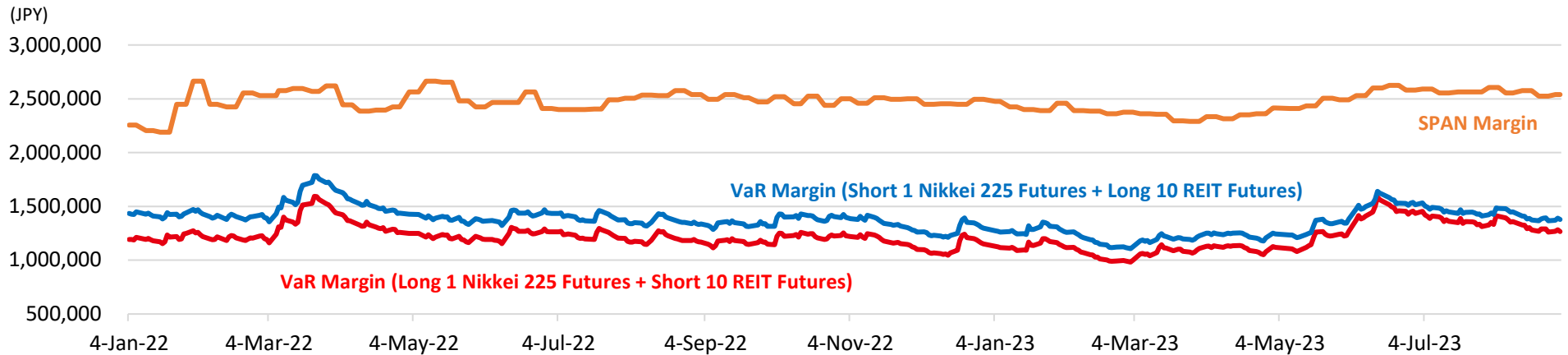
- As Risk Offset between Securities Options and Index Futures/Options will be newly approved, Margin for the position with combination of those products shows the trend to be low.

Strategy	Portfolio	SPAN method (JPY)	VaR Method (JPY)
Covered Call with ETF Option and Futures	Long 1 Sep-23 Nikkei 225 Futures Short 1,000 Sep-23 Nikkei 225 Call Option K=33,000	2,667,000	506,956

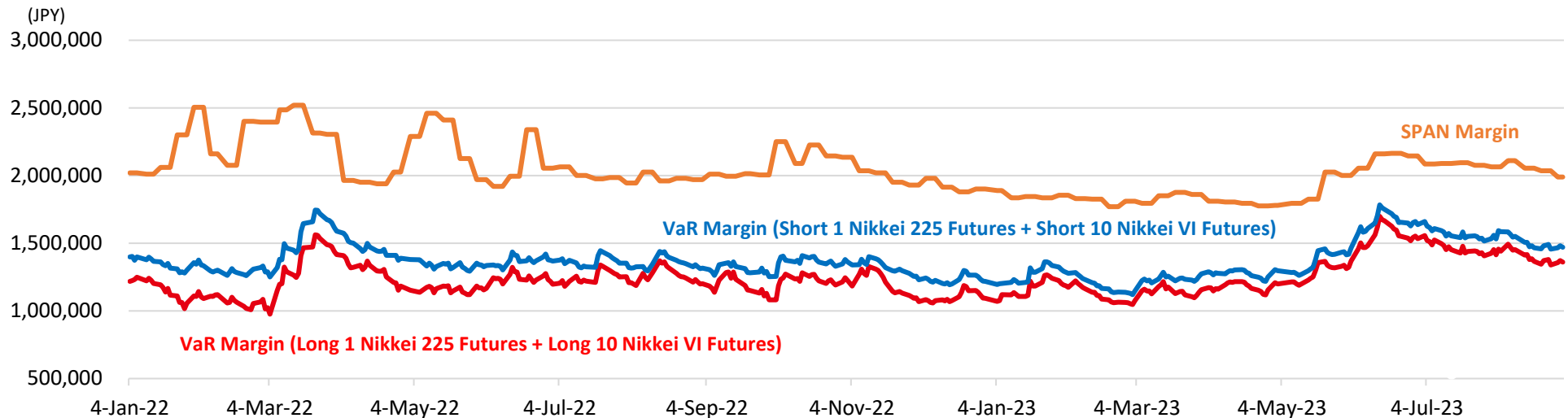
# 5. Products Applying Risk Offset (TSE REIT Index Futures, Nikkei VI Futures)

- In align with the introduction of VaR Method, Risk Offset for TSE REIT Index Futures and Nikkei VI Futures will become available.
- Combination of each of above products with Nikkei 225 shows the trend that margin amount drastically reduces.

**Case: 1 Nikkei 225 Futures nearest contract month + 10 REIT Futures nearest contract (Margin amount in time series)**



**Case: 1 Nikkei 225 Futures nearest contract month + 10 Nikkei VI Futures nearest contract month (Margin amount in time series)**



## 5. Products Applying Risk Offset (LNG Futures, Electricity Futures)

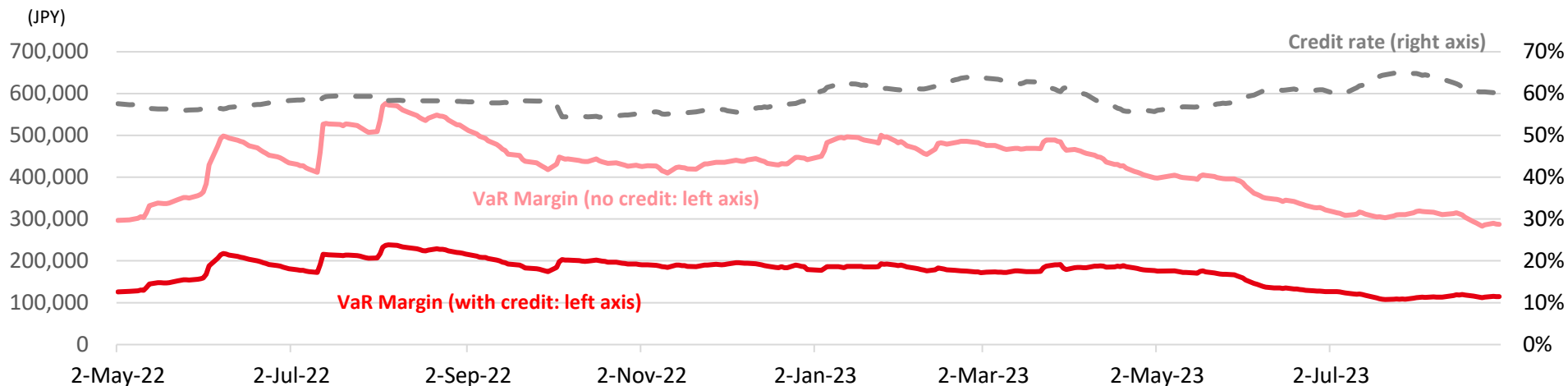
- Though SPAN Method did not provide Risk Offset between LNG Futures and other products, under VaR Method, Risk Offset between LNG Futures and Electricity Futures will become available, contributing to lower margin.

Simulation Date	Product		SPAN Method (without Offset)	VaR Method (With Offset)	Credit Rate
Aug. 30, 2023	East Area Baseload Sep-23 contract Long 2 contracts	LNG Oct-23 contract Short 1 contract	JPY 626,781	<b>JPY 485,558</b>	23%
	East Area Baseload Sep-23 contract Short 2 contracts	LNG Oct-23 contract Long 1 contract	JPY 703,400	<b>JPY 518,574</b>	26%
Sep. 29, 2023	East Area Baseload Oct-23 contract Long 2 contracts	LNG Nov-23 contract Short 1 contract	JPY 643,032	<b>JPY 463,594</b>	28%
	East Area Baseload Oct-23 contract Short 2 contract	LNG Nov-23 contract Long 1 contract	JPY 661,721	<b>JPY 485,629</b>	27%

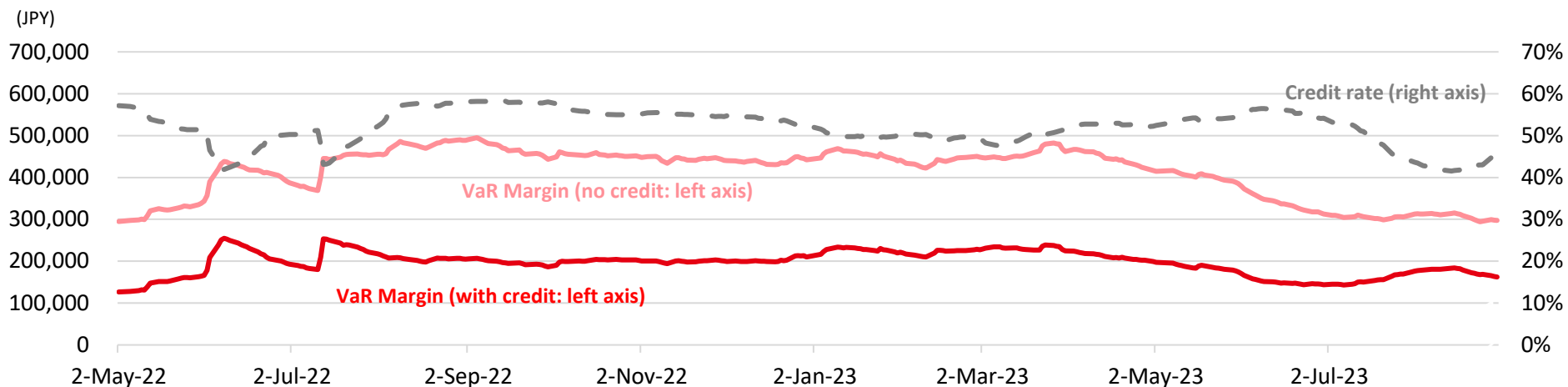
# 6. Expansion of Risk Offset Scope in Electricity Futures

● Risk Offset between west/east area and different contract months for Electricity Futures will become available.

**Case: Long 1 East Area Baseload Jan. 2024 Contract + Short 1 West Jan. 2024 Contract (same contract month/ inter east and west area)**



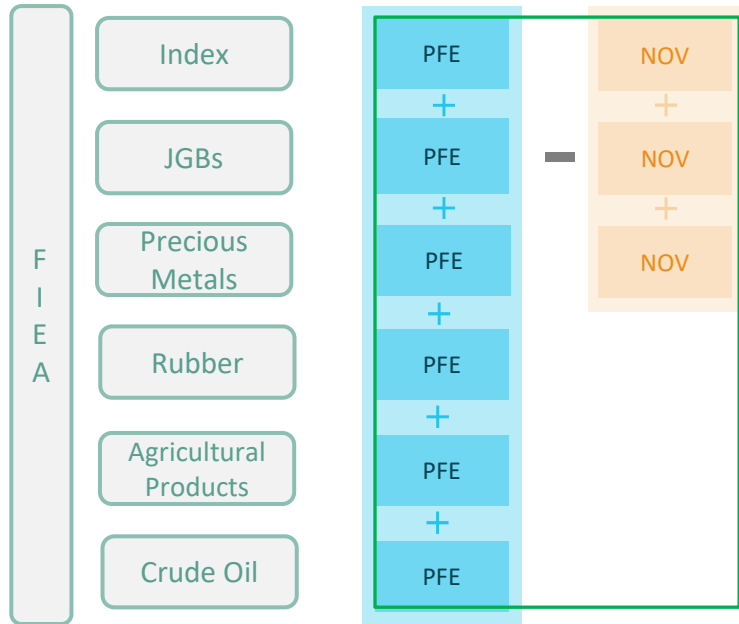
**Case: Long 1 East Area Baseload Jan. 2024 Contract + Short 1 West Apr. 2024 Contract (different contract month/ inter east and west area)**



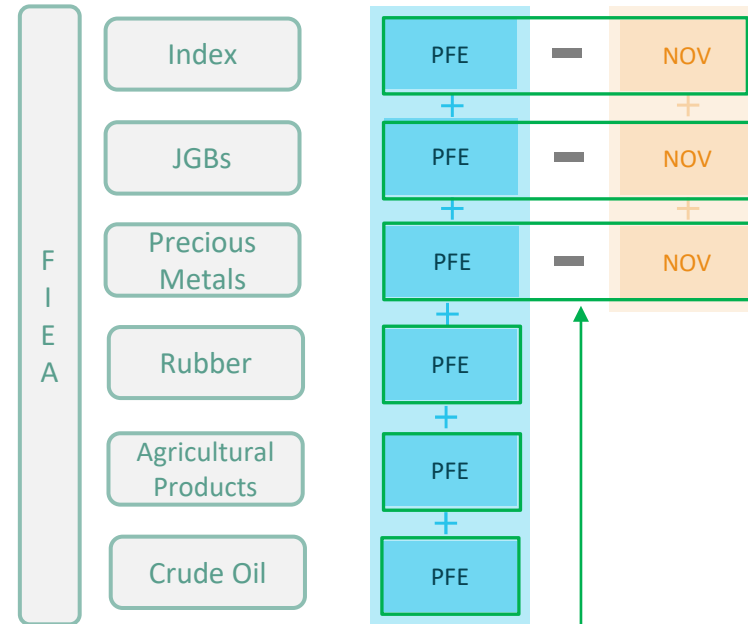
# 7. Change of Calculation Unit for Position with Options

- As VaR Margin amount is calculated by each Clearing Qualification, for position with huge long option (i.e., large NOV) for a certain Clearing Qualification, margin requirement under VaR Method may differ from that under SPAN Method.

## ◆ SPAN Method



## ◆ VaR Method



\* PFE: Potential Future Exposures  
\* NOV : Net Option Value

Change calculation unit of "PFE - NOV" (by each Clearing Qualification)

### Simulation as of Oct. 2

#	Portfolio	SPAN Method	VaR Method
1	Long 1 Nikkei 225 Option Dec-23 33,000 Put Option Short 1 Dec-23 10-year JGB Futures	JPY 1,159,000	<b>JPY 1,320,256</b>