

# Futures Calendar Spread Order (FCSO)



Taiwan Futures Exchange

# Agenda

- Definition of Futures Calendar Spread Order(FCSO)
- How FCISO works?
- FSCO matching algorithms

# Definition of FCSO

- FCSO : An order that simultaneously long and short futures contracts of the same underlying but with different expirations.
- The two contracts(legs) must be executed at the same time for the calendar spread order to be executed.

A collage of various international banknotes including US dollars, Euros, and Chinese Yuan, overlaid with a world map. The text "How FCISO works?" is centered in white.

# How FCISO works?

# FCSO

- FCSO only allow to be placed during **continuous matching** trading session.
- FCSO price
  - The difference of the far-month contract price and the near-month contract price
  - Price could be negative, zero or positive numbers.
  - Long or short of FCSO based on the long or short of the far-month contract.
    - Long FCSO: Long far-month and Short near-month
    - Short FCSO: Short far-month and Long near-month

# FCSO

## ■ FCSO Types and Qualifiers

- Market Order: FOK and IOC
- Market with Protection Order: FOK and IOC
- Limit Order: ROD, FOK and IOC

## ■ FCSO Matching Principle

- Price-time priority
- Unmatched FCSO (ROD Limit orders only), matching system will imply orders into outright order books simultaneously.

# FCSO

## ■ Price Limit Range of FCSO

- FCSO Up limit : **Up limit** of far-month – **Down limit** of near-month
- FCSO Down limit : **Down limit** of far-month – **Up limit** of near-month

### ■ Example :

Outright Order			
TX November		TX December	
Down limit	Up limit	Down limit	Up limit
6335	7287	6365	7323
FCSO			
TX November/December			
Down limit		Up limit	
-922		988	

# Market Info Disclosure

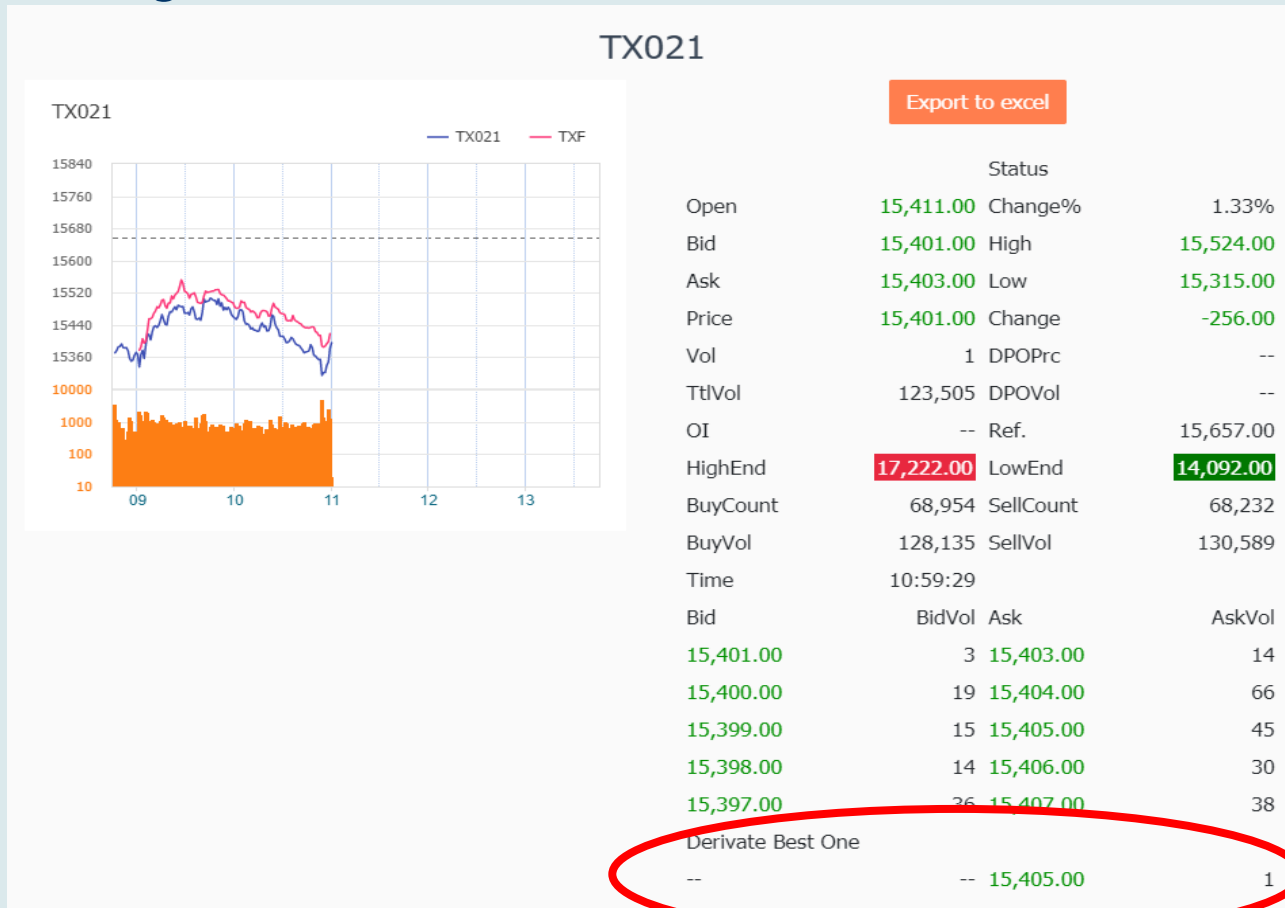
## ■ Bid/Ask Order price/volume disclosure

- Outright Order Book: disclose 5 best bid/ask price volume and 1 derivative best bid/ask price volume.
- FCSO: disclose 5 best bid/ask price volume



# Market Info Disclosure Example

## ■ Outright Order Book:



# Market Info Disclosure Example

## ■ FCSO:

TX021/031

TX021/031



Bid	-75.00	Bid_V	365
Ask	-72.00	Ask_V	189
Price	-74.00	Vol	5
High	-74.00	Low	-75.00
THigh	--	TLow	--
BuyCount	192	SellCount	116
BuyVol	3,576	SellVol	2,208
TtlVol	163	Time	10:18:43
Bid	BidVol	Ask	AskVol
-75.00	365	-72.00	189
-76.00	415	-71.00	176
-77.00	367	-70.00	170
-78.00	281	-69.00	192
-79.00	318	-68.00	203

The background of the slide is a collage of various banknotes, including US dollars (100, 200, 500) and Chinese yuan (1000, 2000). A map of China is overlaid on the banknotes, with a red line tracing a path across it. The entire image has a blue tint.

# FCSO Matching Algorithms

# FCSO Matching Algorithms

## ■ FCSO Matching Process

### ■ Price-time priority

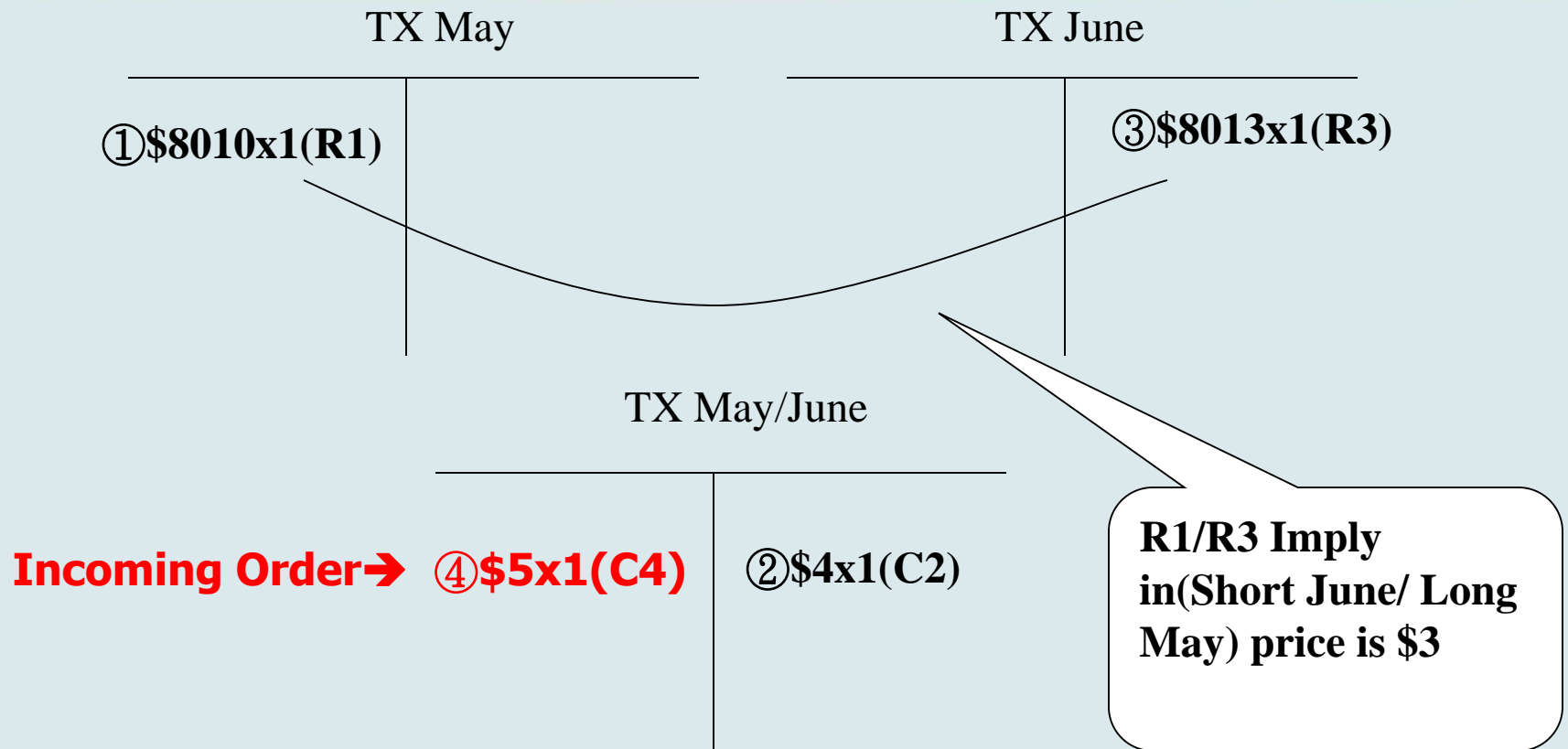
- When receiving FCSO, matching system will proceed **step A. and B. simultaneously**. And will be executed at the best price of step A and B. If both step A and B executed price are the same, it would be time-priority.

- A: To see if could be matched in FCSO book.

- B: Imply in/out outright order book to see if could be matched.

- Unmatched FCSO (ROD Limit orders only) remain in order books, matching system will imply orders into outright order books simultaneously.

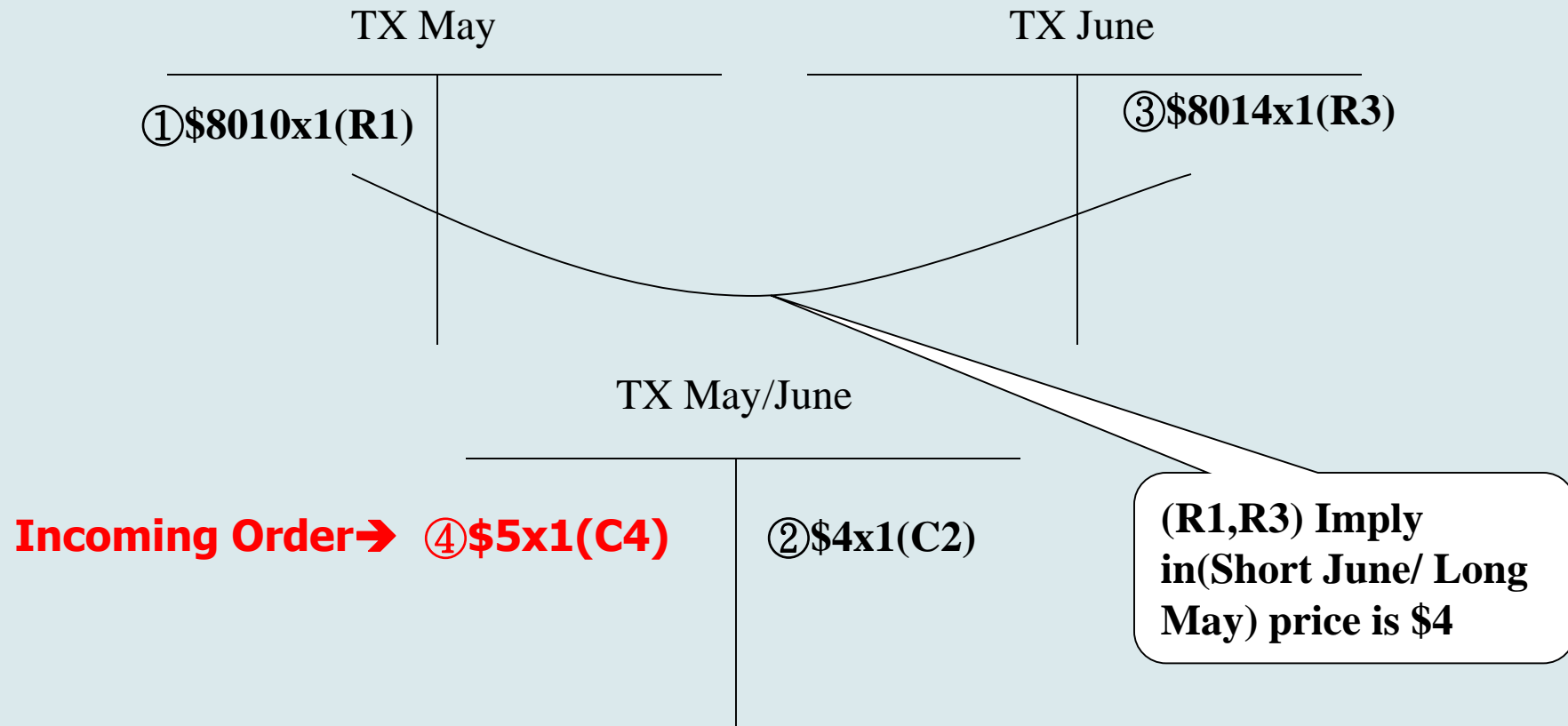
# Example 1-Price-time priority



→ Imply in(R1/R3) price is \$3 which is worse than C2

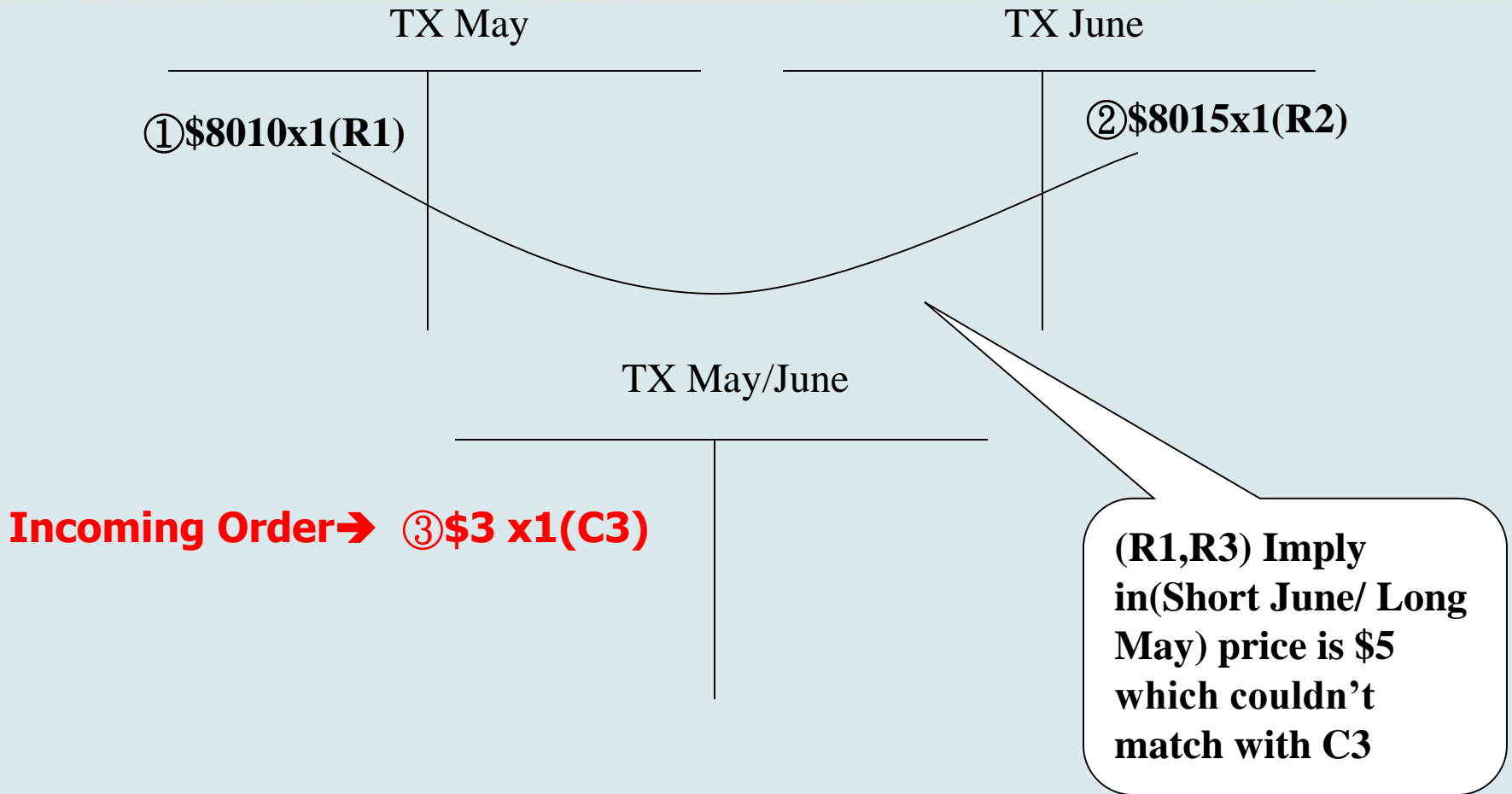
→ C4 match with R1/R3

# Example 2-Price-time priority

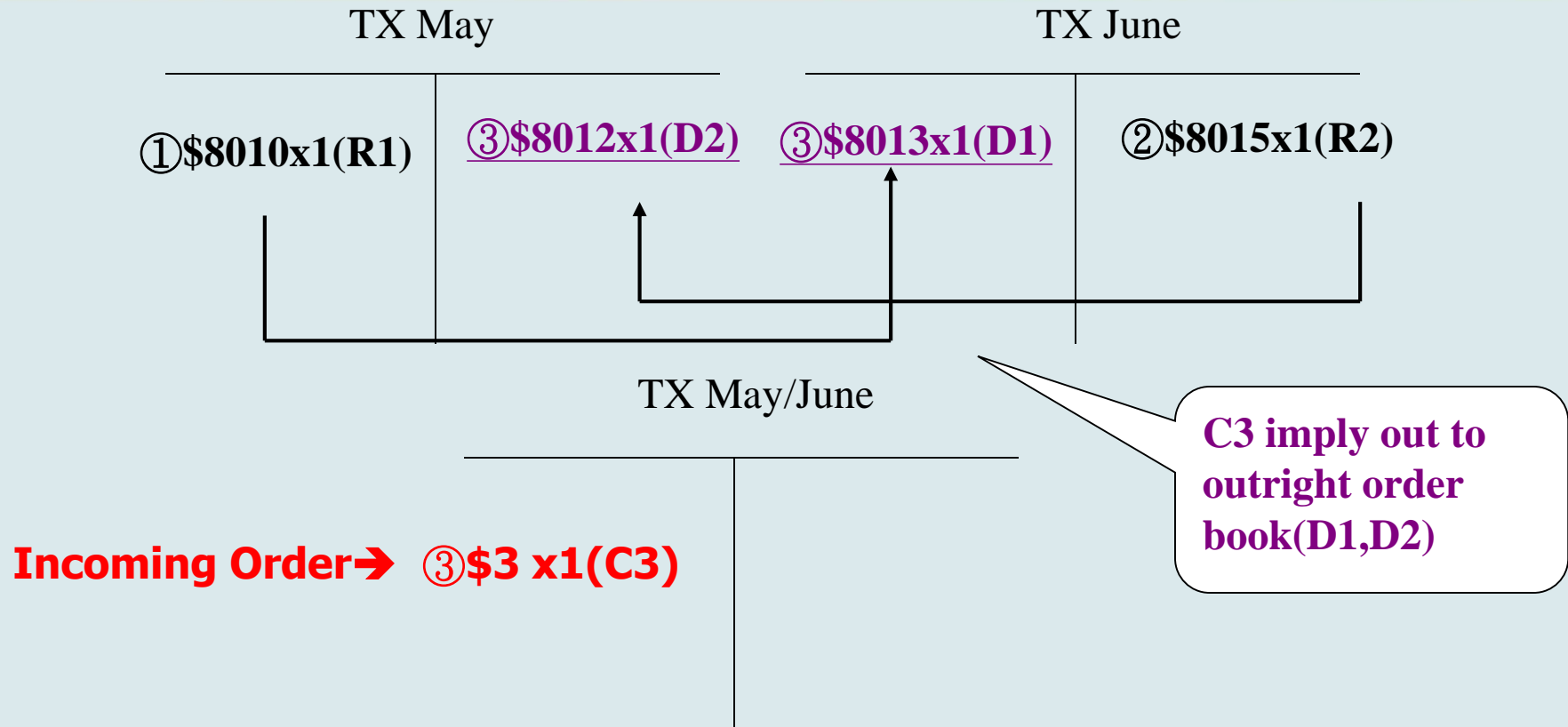


- Imply in(R1,R3) price is \$4 which is the same with C2
- Because C2 is earlier than R3, C4 match with C2(R1,R3)

# Example 3-Unmatched FCISO(cont'd)

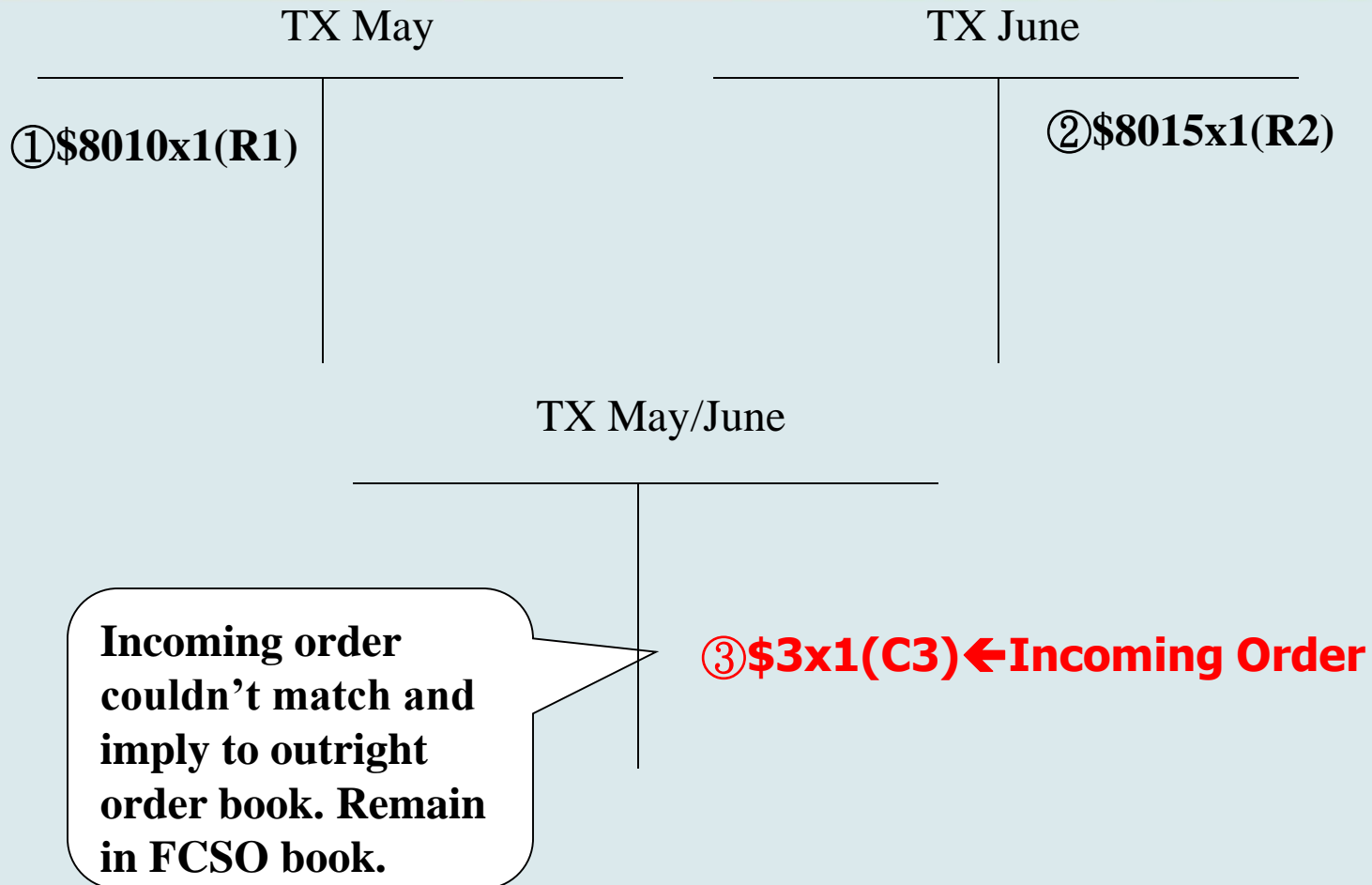


# Example 3-Unmatched FCISO(cont'd)





# Example 3-Unmatched FCSO(cont'd)



# Thanks

