

PRICE DETERMINATION PROCESS

1. DAILY FUTURES MARK TO MARKET (MTM) PRICE

Standard futures contracts on the Commodities and Global derivative markets are priced by the JSE using a standardised mark-to-market (MtM) methodology. This methodology is an attempt to reflect the price levels at which individual contracts are trading at the closing time of the particular market.

The methodology is based on two key principles:

- A snapshot approach which prices all instruments at a point-in-time in order to preserve any prevailing spread relationships between contracts
- A time-weighted average approach which reduces the risk of individual pricing anomalies skewing the closing price

The methodology is applied as follows:

1. Take a full “market watch” snapshot of all futures contracts during every minute interval across the last 5 minutes of the trading session. The snapshot will be taken at a random time during each minute.
2. Determine five resultant snapshot prices for each contract using the last trade / higher bid / lower offer approach:
 - Start with the last traded price, using the previous day’s MtM where there is no trading activity for the day
 - If the best on-screen bid is greater than the last traded price, then set MtM = Best Bid
 - If the best on-screen offer is lower than the last traded price, then set MtM = Best Offer
3. Calculate an average snapshot price for each contract using an arithmetic average of the five snapshot prices. This is the time weighted average price for the contract
4. Apply the rounding convention applicable to that contract

The table below shows a hypothetical calculation for an individual contract:

Snapshot	Random Time	Last Trade	Best Bid	Best Offer	MtM	Method
11:55-11:56	11:55:21	1 805.00	1 804.00	1 804.80	1 804.80	Lower Offer
11:56-11:57	11:56:04	1 805.00	1 806.00	1 806.80	1 806.00	Higher Bid
11:57-11:58	11:57:28	1 806.00	1 805.00	1 805.80	1 805.80	Lower Offer
11:58-11:59	11:58:29	1 806.00	1 805.50	1 806.50	1 806.00	Last Trade
11:59-12:00	11:59:21	1 809.00	1 807.00	1 808.80	1 808.80	Lower Offer
					1 806.28	TWAP
					1 806.00	MTM

2. FINAL SETTLEMENT VALUE (FSV)

Upon expiry of the LAMB contract on Last Trading Day, settlement shall take place in cash based on the Final Settlement Price (FSP) calculated by JSE. Since one contract shall be equivalent to 1000 kg, the final settlement value (FSV) is therefore

$$FSV = 1000xNxFSF$$

Where N is the number of contract held at expiration. Last Trading Day is the last Wednesday of the expiry month.

3. WEEKLY SETTLEMENT PRICE (WSP) AND FINAL SETTLEMENT PRICE (FSP)

The WSP is simply the weighted average weekly price per kilogram of A2 and A3 class LAMB per contributing abattoir, as supplied by the Red Meat Abattoirs Association for the last two weeks preceding Last Trading Day.

Thus, for $i=1\dots n$ contributors in a typical week:

$$WSP = \beta_{A2} \sum_{i=1}^n \omega_{iA2} P_{iA2} + \beta_{A3} \sum_{i=1}^n \omega_{iA3} P_{iA3}$$

Where the weights:

$$\omega_{iA2} = \frac{\text{Total average mass of } A_2 \text{ class sold by contributor } i}{\text{Sum total of } A_2 \text{ average mass in one week}}$$

$$\omega_{iA3} = \frac{\text{Total average mass of } A_3 \text{ class sold by contributor } i}{\text{Sum total of } A_3 \text{ average mass in one week}}$$

$$\beta_{A2} = \frac{\text{Sum total of } A_2 \text{ average mass in one week}}{\text{Grand total of } A_2 \text{ and } A_3 \text{ average masses in one week}}$$

$$\beta_{A3} = \frac{\text{Sum total of } A_3 \text{ average mass in one week}}{\text{Grand total of } A_2 \text{ and } A_3 \text{ average mass in one week}}$$

And

P_{iA2} and P_{iA3} are A2 and A3 average prices in rand per kilogram for contributor i.

Therefore if we denote the last week of price information prior to Last Trading Day as d , then the **Final Settlement Price** obtained over the preceding two weeks is:

$$FSP = \sum_{j=(d-1)}^d \theta_j WSP_j$$

Where,

$$\theta_j = \frac{\text{Total average mass of } A_2 \text{ and } A_3 \text{ in week } j}{\text{Grand total of } A_2 \text{ and } A_3 \text{ average masses in both weeks}}$$

4. PRICE INFORMATION PROCESS

- a. For each of the relevant LAMB class, A2 or A3:
 - i. the number of carcass units is multiplied by the corresponding weighted average mass to obtain the total kilograms sold in that class category for each contributing abattoir; and
 - ii. the resulting product in i. above is then multiplied by the corresponding weighted average purchasing price, to obtain the total Rands sold in that class category for that reporting period.
- b. For each transaction week:
 - i. the Total Kilograms sold in the relevant class categories (i.e., the results from a.i., above) are aggregated to obtain the Total Kilograms sold per class for that week; and
 - ii. the Total Rands sold in the relevant class categories (i.e., the results from a.ii, above) are aggregated to obtain the total Rands sold per class for that week.
 - iii. Weekly Settlement Price (WSP) for the week is obtained by dividing Total Rands (in b.ii. above) by Total Kilograms (obtained in b. i. above) for class A2 and class A3 and then taking an average.
- c. For the last two weeks preceding Last Trading Day:
Settlement Price of week I is added to Settlement Price of week II on a volume-weighted basis of total average carcass masses over the two-week period. The result is the **Final Settlement Price**.
- d. **Final Settlement Value = Nominal *N* Final Settlement Price**, where N is number of contracts held at expiration.