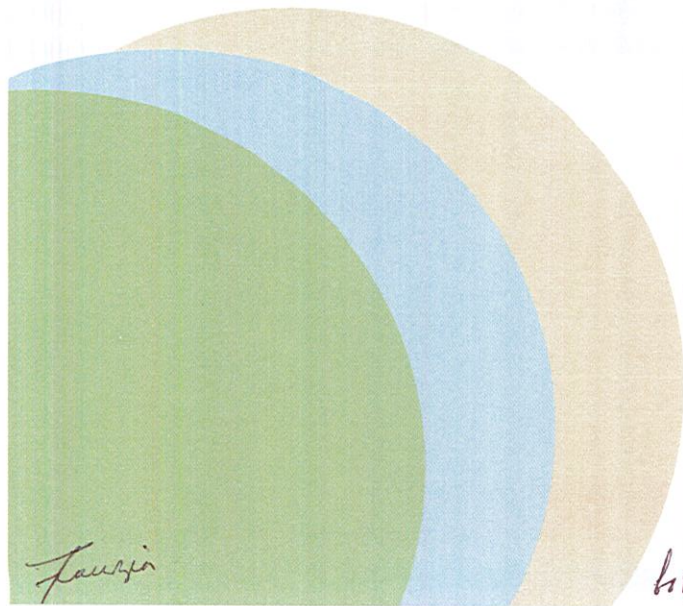




# Example of opening price algorithm



*Enayetur Raheem*



**Dhaka Stock  
Exchange Limited**





# Dhaka Stock Exchange Limited

## EXAMPLE OF OPENING PRICE ALGORITHM

Market	Pre-open and Opening Session	Continuous Trading Session	Closing & post-closing (Trade at Close Price) session
1. Public 2. Spot 3. Debt	9.45 am to 10:00 am	10.00 am to 2:30 pm	2.30 pm to 2:40 pm
4. Block	Not Applicable	10.00 am to 2:30 pm	Not Applicable

*Laurel*

*Bozal Bhatta*



*JK*



# Dhaka Stock Exchange Limited

## EXAMPLE OF OPENING PRICE ALGORITHM

### Matching Mechanism: Opening Price Algorithm

The equilibrium price is the price at which most orders will execute with the lowest imbalance. The equilibrium price calculation method can be configured to use one of the following:

Rule 1	Maximize Executed Quantity - use the price at which the most quantity will trade
Rule 2	Minimize Surplus Quantity - if more than one price, then select the price with lowest imbalance
Rule 3	If the lowest imbalance is same on both sides, then choose price closest to the previous closing price

*Farazi*

*Boyet Abdullah*



# Dhaka Stock Exchange Limited

## EXAMPLE OF OPENING PRICE ALGORITHM

- (a) According to 9(a) of the Dhaka Stock Exchange Automated Trading Regulations, 1999, TREC Holders are allowed only to enter orders and orders made during this session are held in the system and not forwarded to the execution engine. In this session, the whole order book will be shown.

For better understanding we would like to give an example considering highest level of complexity by describing an order book of XYZ company immediately before the market opens:

BUY			SELL		
Order Ref.	Qty	Price	Price	Qty	Order Ref
A	4,500	3.1	2.98	6,600	K
B	25,000	3.08	2.98	5,000	L
C	3,200	3.08	2.99	3,600	M
D	1,900	3.04	3	17,500	N
E	49,700	3	3.06	1,900	O
F	8,000	2.99	3.08	16,900	P
G	16,400	2.98	3.1	8,500	Q
H	5,400	2.97	3.12	21,650	R
I	900	2.96	3.14	11,420	S
J	4,575	2.95	3.16	290	T

In compliance with 9(a) and 12 of the Dhaka Stock Exchange Automated Trading Regulations, 1999, orders shall be queued in the order book based on price and time of entry.

*Fauzan*

*Foyed Akhter*

*[Signature]*

*[Signature]*



# Dhaka Stock Exchange Limited

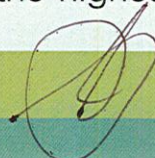
## EXAMPLE OF OPENING PRICE ALGORITHM

- (b) In compliance with 9(b) of the Dhaka Stock Exchange Automated Trading Regulations, 1999, opening price of XYZ shall be calculated by determining the Maximum Executable Volume (Based on the principle of demand supply mechanism, exchange will arrive at the equilibrium price) in the following way:
- (i) At first, cumulative buy quantity and cumulative sell quantity shall be calculated. The Cumulative Buy Quantity at any price is the buy quantity at that price plus the sum of the buy quantities at all highest Price. The Cumulative Sell Quantity at any price is the sell quantity at that price plus the sum of the sell quantities at all lowers Price.

BUY		SELL		
Cumulative Buy Quantity	Buy Quantity at Price	Price	Sell Quantity at Price	Cumulative Sell Quantity
4,500	4,500	3.1	8,500	60,000
32,700	28,200	3.08	16,900	51,500
32,700	0	3.06	1,900	34,600
34,600	1,900	3.04	0	32,700
34,600	0	3.02	0	32,700
84,300	49,700	3	17,500	32,700
92,300	8,000	2.99	3,600	15,200
108,700	16,400	2.98	11,600	11,600

- (ii) The executable volume at each price is the maximum quantity which may be traded at that price. The Maximum Executable Volume Overall is highest number which is 32,700 (at five different price level: 3.08, 3.06, 3.04, 3.02, & 3) in this example.

However, if there is single price with the highest number of execution, that price level shall be considered as opening price.

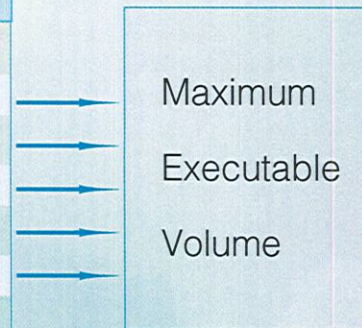




# Dhaka Stock Exchange Limited

## EXAMPLE OF OPENING PRICE ALGORITHM

Cumulative Buy Quantity	Price	Cumulative Sell Quantity	Maximum Executable Volume
4,500	3.1	60,000	4,500
32,700	3.08	51,500	32,700
32,700	3.06	34,600	32,700
34,600	3.04	32,700	32,700
34,600	3.02	32,700	32,700
84,300	3	32,700	32,700
92,300	2.99	15,200	15,200
108,700	2.98	11,600	11,600



- (c) Since there is more than one price level, to arrive at the equilibrium price system will determine the price levels at which the unfilled or unmatched quantity is a minimum. The theory of equilibrium price will fit if the quantity of shares left in the market at the auction price is the lowest possible. Ignoring the Positive and Negative signs, the lowest quantity is 1,900 at three different price levels (3.06, 3.04 & 3.02).

However, if there is single price level with the minimum unmatched quantity, that price level shall be considered as opening price.

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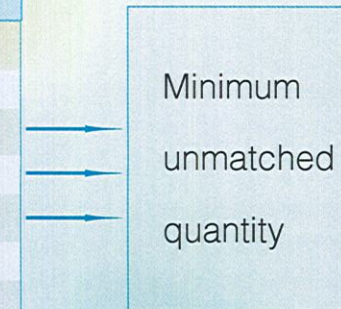
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# Dhaka Stock Exchange Limited

## EXAMPLE OF OPENING PRICE ALGORITHM

Cumulative Buy Quantity	Price	Cumulative Sell Quantity	Maximum Executable Volume	Minimum Surplus (CBQ-CSQ)
4,500	3.1	60,000	4,500	
32,700	3.08	51,500	32,700	(-)18,800
32,700	3.06	34,600	32,700	(-)1,900
34,600	3.04	32,700	32,700	(+)1,900
34,600	3.02	32,700	32,700	(+)1,900
84,300	3	32,700	32,700	(+)51,600
92,300	2.99	15,200	15,200	
108,700	2.98	11,600	11,600	



- (d) Since there is more than one price level with minimum unmatched quantity, system will determine an auction price on the basis of proximity to a yesterday closing price/open-adjusted price from the range of prices which are 3.06, 3.04 and 3.02. If previous trading day's closing price/open-adjusted price was 3.04 or lower, then the opening price for XYZ would be established at 3.04. If the previous trading day's closing price/open-adjusted price was 3.06 or higher, then the opening price for XYZ would be 3.06.

If yesterday close price/open-adjusted price was 3.05 then close proximity is 3.06 or 3.04 which are equally distanced; then opening price will be considered as the higher one which is 3.06. Also if yesterday closing price/open-adjusted price was 3.03 then close proximity is 3.04 or 3.02 which are equally distanced; then opening price will be considered as the higher one which is 3.04.

- (e) After that continuous trading session will start at the opening price trade execution and continue in compliance with 9(c) of Dhaka Stock Exchange Automated Trading Regulations, 1999.

Lousia

Fozil Akhbar