

3.6. A market receives the following sell orders. How are they ranked? That is, in what order will they be executed (1=first, 2=second, ..., 5=last)

Rank	Direction	Price	Time	Quantity	Visibility	Trader
1	Sell	\$20.00	11:01	200	D	Andy
2	Sell	\$20.00	11:02	100	D	Beth
5	Sell	\$20.50	11:08	300	D	Cathy
3	Sell	\$20.45	11:09	500	D	David
4	Sell	\$20.45	11:15	100	D	Emma

$$\text{eff spread} = 2 \times \text{eff cost}$$

8.1. Cost computations. The NBBO / Bid-ask midpoint record for XYZ is:

ofo — .99
— .98 →

bid — .94

Time	NBB	NBO	BAM	Spread
11:01:00	35.05	35.10	35.075	0.05
11:02:00	34.94	34.99	34.965	0.05
11:03:00	34.83	34.86	34.845	0.03
11:04:00	34.77	34.81	34.790	0.04
11:05:00	34.77	34.85	34.810	0.08
11:06:00	34.74	34.78	34.760	0.04
→ 11:07:00	34.75	34.78	34.765	0.03
11:08:00	34.80	34.86	34.830	0.06
11:09:00	34.72	34.75	34.735	0.03
11:10:00	34.75	34.83	34.790	0.08
11:11:00	34.66	34.69	34.675	0.03
11:12:00	34.74	34.78	34.760	0.04
11:13:00	34.82	34.88	34.850	0.06

$$\begin{array}{r} .980 \\ -.965 \\ \hline .015 \text{ eff.} \end{array}$$

$$\begin{array}{r} .980 \\ -.765 \\ \hline .215 \text{ r/zd cost.} \end{array}$$

$$\begin{array}{r} .965 \\ -.765 \\ \hline .200 \text{ pr. imp.} \end{array}$$

What are the effective cost, realized cost, price improvement and price impact for the following trades?

$$+ 5 \text{ min} = 11:07:44$$

- a. An order arriving at 11:02:44, buy 100 shares limit 35.00, was executed at 34.98.
- b. An order arriving at 11:07:02, sell 100 shares limit 34.70, was executed at 34.73.

$$\text{pr imp} = .73 - .75 = -.02$$

30.50

8.4. At 10am, with the NBBO at 30.20 bid, offered at 30.28, the Pegasus Fund places an order to buy 1,000 shares limit ~~30.15~~. As the market moves away (upwards), Pegasus makes the limit order more aggressive. The order gets (partial) executions of 200 shares at \$30.22 and 500 shares at \$30.23. The market closes at \$30.39. What is the VWAP of the executed shares? Relative to the initial bid-ask midpoint, what is the implementation shortfall of the executed shares?

$$\frac{30.22 \times 200}{700} + \frac{30.23 \times 500}{700}$$

fanari also have ex of 300 @ 30.39

$$\frac{1}{1000} (30.22 \times 200 + 30.23 \times 500 + 300 \times 30.39)$$