***Bid-Ask Spread Example 1***

**Question 1:** On the right is a screenshot which shows the market depth for ANZ bank shares.

**Question 1a:** What is the bid-ask spread on these shares?

**Answer:** bid-ask spread = ask - bid

= 33.91 - 33.9

= $0.01

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**Question 1b:** What is your best estimate of the 'true price' of these shares?

**Answer:** midpoint = (ask + bid)/2

= (33.91 + 33.9)/2 = 33.905

**Question 1c:** What is the best price that you could **buy** one share when placing a **market** order?

**Answer:** We execute our market buy order against the limit sell orders shown in the limit order book. The lowest price that we can buy from these sellers is at $**33.91**, which is the best ‘ask’ or ‘offer’.

**Question 1d:** How much money could you **sell** 10,000 shares for, using a market order? (Note that in this question you are selling, in the previous question, you are buying).

**Answer:** We can only sell to the buyers, and they are prepared to sell 7,000 shares at $33.9, and then we’ll have to sell the remaining 3,000 shares at the slightly worse price of $33.89. So altogether that’s:

Sales = 7,000\*33.9+3,000\*33.89

=$338,970

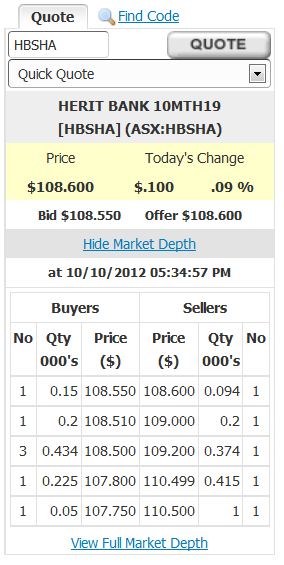
**Question 1e:** What is the implicit cost of selling these 10,000 shares, given your 'true price' answered above?

**Answer:** The actual sale price less the ‘true’ midpoint price summed across all stocks will give the total implicit cost.

ImplicitCost = 7,000\*(33.9-33.905)+

3,000\*(33.89-33.905)

= 80

***Bid-Ask Spread Example 2***

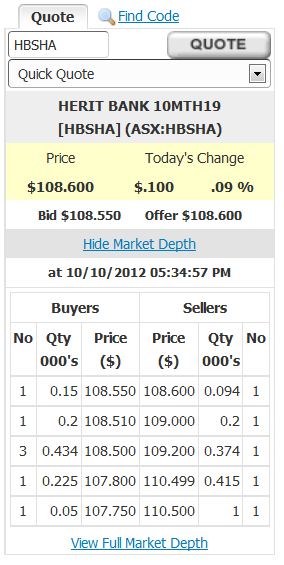
**Question 2:** On the right is a screenshot from a brokerage which shows the market depth for Heritage Bank Notes (ticker: HBSHA).

**Question 2a:** What is the bid-ask spread on these notes?

**Answer:** $0.05

**Question 2b:** What is your best estimate of the 'true price' of these notes?

**Answer:** $108.575

**Question 2c:** What is the best price that you could buy one Heritage Note when placing a market order?

**Answer:** $108.6

**Question 2d:** How much would it cost to buy 200 notes using a market buy order, excluding explicit transaction costs?

**Answer:** Expense = 94\*108.6 + 106\*109

= $21,762.4