

Level 2

explained



Stock Exchange Electronic Trading Service

ADVFN

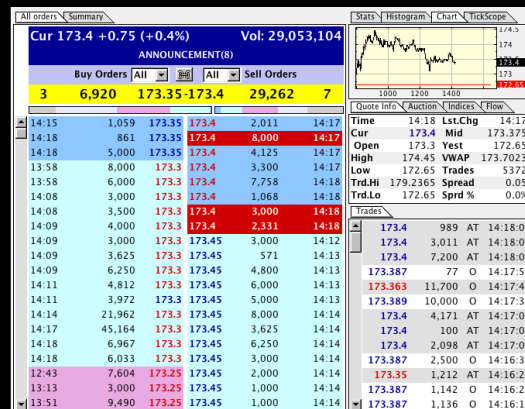
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ADVFN UK Level 2 part 1 SETS

Welcome to the first part of ADVFN Level 2

These notes are designed to help people coming to Level 2 data for the first time.

A low level of prior knowledge and experience is presumed. Some concepts are explained in several ways to help ensure a clear understanding of what is going on.



These notes will cover:

- An general introduction to Level 2
- How to approach Level 2 data to get the most out it.
- A full break down of Level 2 SETS screens

Introduction to Level 2:

Level 2 is predominantly a tool for institutional traders, brokers and market makers. It is the electronic replacement for the old open outcry trading floor.

The old open outcry trading floor used 'stock jobbers', or as they now prefer to be called 'market makers', who would quote prices to buy and sell stocks. All buying and selling happened through the market makers.

Purchasing a stock was a negotiation that happened within a very small privileged group of financial professionals.

The advent of the electronic Level 2 system heralded a massive change to the market. Most notable being the change in role of the market makers, who had become a bottle neck for the more liquid stocks.

On highly liquid stocks, market makers were replaced with an automated Level 2 trades screen (SETs) which can handle huge numbers of trades and move extremely quickly.

The market makers are still there but their role and influence is now more clearly to be seen with the less liquid stocks, which are mostly found listed on the Alternative Investment Market (AIM).



Market makers present their quotes through a version of the Level 2 display, so you can quickly and easily see where and at what levels Market Makers are pricing stock.

As a result Level 2 has made the process of buying and selling stocks far more transparent, and far more liquid.

In the UK, LSE Level 2 screens used to be prohibitively expensive and only available to the larger market players.

In 2001 ADVFN started offering level 2 data to private investors. The first company to offer the service at a more reasonable price.

Approaching Level 2 data for the first time

Level 2 shows you all of the orders to buy or sell stock.

By watching these orders, Level 2 gives you a much better impression of market sentiment and behaviour. For any true trader this is where the rubber hits the road: the electronic haggle for the best price.

Level 2 is a professional tool for active traders, but it is not a crystal ball...

There are times when it is possible to discern market pressure building towards a change in price direction and other occasions when it isn't.

There are many market participants out there; each with their own approach, style, reason and timescale for trading.

The value of Level 2 becomes clearer if you know whether you want to buy or sell a stock before you look at the screen.

For example, you want to buy some stock; ordinarily you might go straight in and hit the

Offer price. Using Level 2 and viewing the other orders in the market, you might decide to place an order on the book to buy at an improved entry price.

Obviously you can place a limit order without Level 2, but with the ability to see the other orders around your position, you can improve the chances of your order being filled and potentially get a better price.

You can also see the speed that trades hit the order book. All these factors allow you to make a more informed decision about where and how you enter the market.

Level 2 gives you information that allows you to think more dynamically about how you trade. Even if you only use it to help set up your stop loss it can be invaluable.

More than any other price data tool, Level 2 makes the market more transparent.

Approaching Level 2 data for the first time

There are three types of LSE Level 2 screen

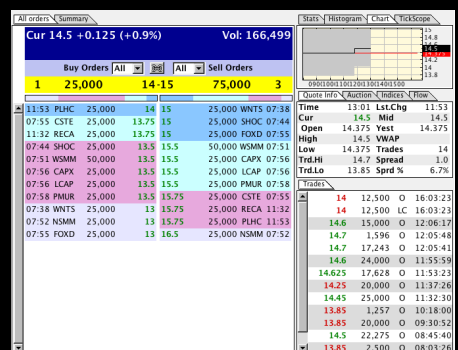
SETS (Stock Exchange Electronic Trading Service)
For the most liquid stocks in the market.



SETSqx (Stock Exchange Electronic Trading Service – quotes and crosses).
Four electronic auctions a day with continuous quote driven screens.
For semi-liquid stocks.



SEAQ (Stock Exchange Automated Quotation System)
Market maker quote screens for illiquid small cap stocks.



In this document we are
dealing with the
SETS Level 2 screen

Level 2 Data

SETS screen

'SETS' (Stock Exchange Electronic Trading Service) is the order book. It displays the orders to buy and sell shares that sit behind current price.

If you place an order to *buy* stock at a price that matches the lowest *sell* price on the SETS order book it is automatically traded.

If you place an order to *sell* stock at a price that matches the lowest *buy* price on the SETS order book it is automatically traded.

This last 'AT' (automated trade) is the basis for the current price.

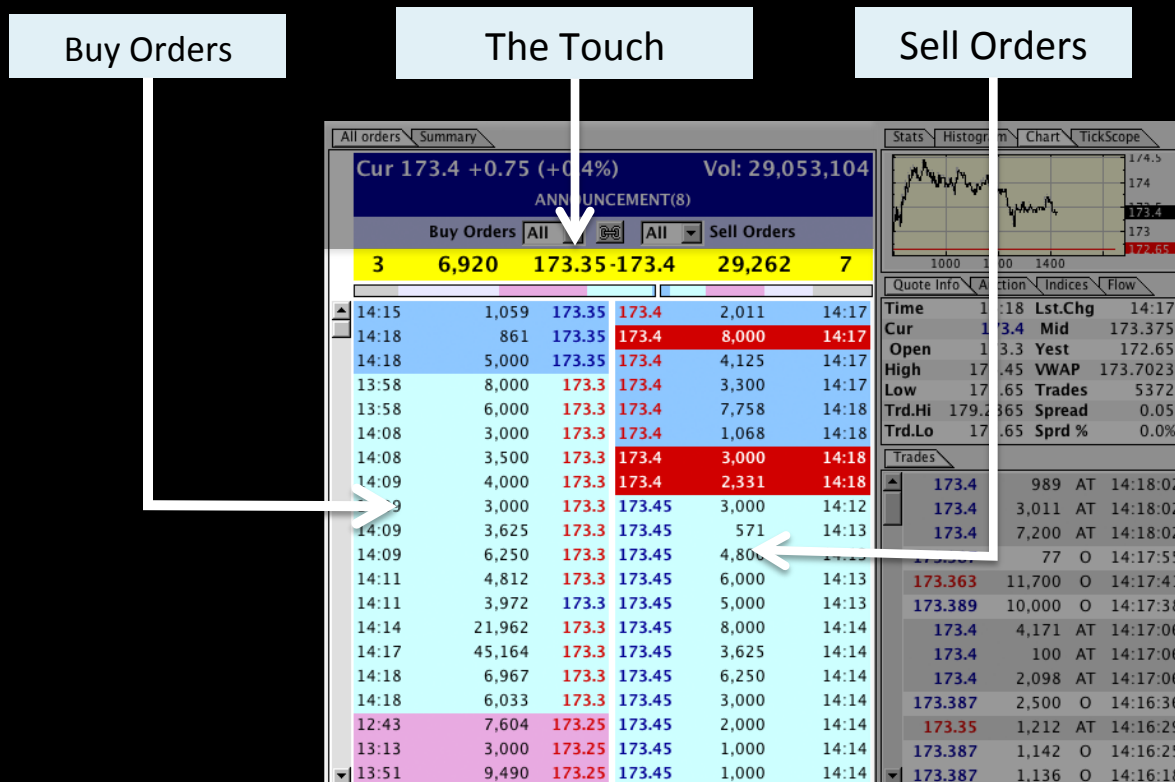
The London Stock Exchange has around 2500 stocks in its Main Market and AIM.

Of these around 900 are displayed and traded with the SETS Level 2 screen.

These 900 represent the most liquid (highly traded) stocks, on the exchange.

There are 3 main parts of a SETS screen

The list of **'Buy Orders'** The list of **'Sell Orders'** and **'The Touch'**



Level 2 Data

SETS screen

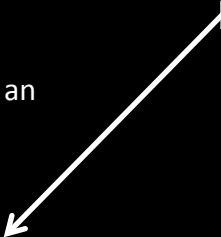
BUY orders

Buy orders are listed on the left of the screen. If you are selling shares you would look at this side of the order book, as you need to find someone who wants to 'buy' them from you.

The buy orders lists everybody who has placed an order to buy shares.

Each order in the list has a:

Time	Size	Price
14:15	1,059	173.35



Cur 173.4 +0.75 (+0.4%) Vol: 29,053,104					
ANNOUNCEMENT(S)					
Buy Orders		Sell Orders			
3	6,920	173.35-173.4	29,262	7	
14:15	1,059	173.35	14:17	2,011	14:17
14:18	5,000	173.35	14:17	8,000	14:17
13:58	8,000	173.3	14:17	3,300	14:17
13:58	6,000	173.3	14:18	7,758	14:18
14:08	3,000	173.3	14:18	1,068	14:18
14:08	3,500	173.3	14:18	3,000	14:18
14:09	4,000	173.3	14:18	2,331	14:18
14:09	3,000	173.3	14:12	3,000	14:12
14:09	3,625	173.3	14:13	571	14:13
14:09	6,250	173.3	14:13	4,800	14:13
14:11	4,812	173.3	14:13	6,000	14:13
14:11	3,972	173.3	14:13	5,000	14:13
14:14	21,962	173.3	14:14	8,000	14:14
14:17	45,164	173.3	14:14	3,625	14:14
14:18	6,967	173.3	14:14	6,250	14:14
14:18	6,033	173.3	14:14	3,000	14:14
12:43	7,604	173.25	14:14	2,000	14:14
13:13	3,000	173.25	14:14	1,000	14:14
13:51	9,490	173.25	14:14	1,000	14:14

		Highest Price
14:15	1,059	173.35
14:18	861	173.35
14:18	5,000	173.35
13:58	8,000	173.3
13:58	3,500	173.3
14:08	6,250	173.3
14:09	4,812	173.3
14:09	6,033	173.3
12:43	7,604	173.25
13:13	3,000	173.25
13:51	9,490	173.25
		Lowest Price

Buy orders are listed from the highest price at the top (the best price that someone is willing to 'BUY' a stock from you) down to the lowest at the bottom.

Each price level has a different coloured background, making it is easier to see how many orders there are in each price band.

Within each price band orders are listed by the time that they were first placed, the oldest orders listed first, at the top of the list. The oldest order for each price will be executed first.

Level 2 Data

SETS screen continued...

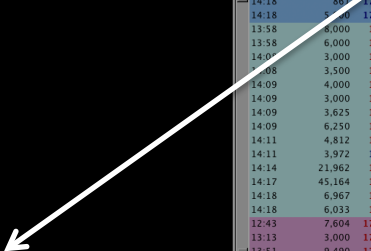
SELL orders

Sell orders are listed on the right of the screen. If you are buying shares you would need to look at this side of the order book, as you need to find someone who will sell them to you.

The sell orders shows you everybody who has placed an order to sell.

Each order in the list has a:

Price	Size	Time
173.4	2,011	14:17



All orders Summary				
Cur 173.4 +0.75 (+0.4%) Vol: 29,053,104				
ANNOUNCEMENT(8)				
Buy Orders		Sell Orders		
3	6,920	173.35-173.4	29,262	7
14:15	1,059	173.4	2,011	14:17
14:18	863	173.4	4,125	14:17
14:18	5,000	173.35	173.4	14:17
13:58	8,000	173.3	173.4	14:17
13:58	6,000	173.3	173.4	14:18
14:09	3,000	173.3	173.4	14:18
14:09	3,500	173.3	173.4	14:18
14:09	4,000	173.3	173.4	14:18
14:09	3,000	173.3	173.45	14:12
14:09	3,625	173.3	173.45	14:13
14:09	6,250	173.3	173.45	14:13
14:11	4,812	173.3	173.45	14:13
14:11	3,972	173.3	173.45	14:13
14:14	21,962	173.3	173.45	14:14
14:17	45,164	173.3	173.45	14:14
14:18	6,967	173.3	173.45	14:14
14:18	6,033	173.3	173.45	14:14
12:43	7,604	173.25	173.45	14:14
13:13	3,000	173.25	173.45	14:14
13:51	9,490	173.25	173.45	14:14

Sell orders are listed from the lowest price at the top (the best price that someone is willing to sell a stock to you) down to the highest at the bottom.

Again each price level is differently coloured, making it is easier to see how many orders there in each price band.

Within each price band orders are listed by time, the oldest orders at the top of the list. The oldest order for each price will be executed first.

Lowest Price		
173.4	2,011	14:17
173.4	8,000	14:17
173.4	4,125	14:18
173.4	3,300	14:18
173.45	3,000	14:12
173.45	571	14:13
173.45	4,800	14:13
173.45	6,000	14:13
173.45	5,000	14:14
173.45	8,000	14:14
173.45	3,625	14:14
Highest Price		

The Touch

Above the lists of buys and the list of sells is the yellow bar called the 'Touch'.

The top of the order book is where the buys and the sell prices almost meet. The figures in the touch give a summary of the buy and sell orders at the current Bid and Offer prices.



The screenshot shows the 'Touch' bar at the top of the order book. The bar is yellow and contains the following information: 3, 6,920, 173.35-173.4, 29,262, 7. Below the bar is the order book, which lists buy and sell orders with their respective prices and volumes.

Bid (the highest buy order price) and Offer (the lowest sell order price) are the only part of the order book that can be seen without Level 2.
The gap between the Bid and Offer is known as the 'spread'.

The number of buy orders at the Bid price



The total number of shares in those 3 orders

Bid



Offer



The total number of shares in those 4 orders

The number of sell orders at the Offer price



3

6920

17.35 – 173.4

17436

4

Buy

Highest Price

Lowest Price

Sell

14:15	1,059	173.35	173.4	2,011	14:17
14:18	861	173.35	173.4	8,000	14:17
14:18	5,000	173.35	173.4	4,125	14:18
13:58	8,000	173.3	173.4	3,300	14:18
13:58	3,500	173.3	173.45	3,000	14:12
14:08	6,250	173.3	173.45	571	14:13
14:09	4,812	173.3	173.45	4,800	14:13
14:09	6,033	173.3	173.45	6,000	14:13
12:43	7,604	173.25	173.45	5,000	14:14
13:13	3,000	173.25	173.45	8,000	14:14
13:51	9,490	173.25	173.45	3,625	14:14

Lowest Price

Highest Price

Level 2 Data

SETS screen continued...

The order list represents the backbone of the market, allowing price movement.

As each order is filled it is removed from the list and the next order moves up to replace it.

Buys		Highest Price
14:15	1,059	173.35
14:18	861	173.35
14:18	5,000	173.35
13:58	8,000	173.3
13:58	3,500	173.3
14:08	6,250	173.3
14:09	4,812	173.3
14:09	6,033	173.3
12:43	7,604	173.25
13:13	3,000	173.25
13:51	9,490	173.25
		Lowest Price



If for example all of the buy orders are filled at 173.35,



173.3 will move to the top of the list, causing the bid price to go down.

The same process occurs on the sell list causing the offer price to rise.

If the stock is highly liquid, orders on the other side of the book will often “chase” the Bid or Offer change, moving up or down to maintain a close spread on the stock.

If the spread between the Bid and Offer becomes wider, it is an indication that the share may be becoming less liquid and slower moving. A wider spread effects the incentive to take a position in a stock, as the spread will have further to move to take profit. With fewer active participants there is also a greater risk that the stock price will not move far enough to cover the distance between the Bid and Offer to take profit.

Level 2 Data

SETS screen continued...

14:15	1,059	173.35
14:18	861	173.35
14:18	5,000	173.35
13:58	8,000	173.3
13:58	3,500	173.3
14:08	6,250	173.3
14:09	4,812	173.3
14:09	6,033	173.3
12:43	7,604	173.25
13:13	3,000	173.25
13:51	9,490	173.25

When an order is first **added** to the book it will appear as a green order addition.

Amendments

If an order's price is increased it will also flash green.

When an order is **deleted** from the book it will appear as a red order deletion.

Amendments

If an order's price is decreased it will also flash red.

When an order's volume is **reduced** it will appear with a yellow background.

If a price or a volume is increased, the order will be deleted and re-inserted. Updating the order's time stamp placing it back at the bottom of its price band on the book. This prevents participants entering lots of small orders to hold best positions.

A order deletion and re-insertion will also occur if a price is decreased.

A reduction of volume size will make the background flash yellow but it will not change the time stamp.

You can follow these changes to the book using the 'Flow panel' which follows price volume and order changes over the last 1, 5, 10, 15, 30 and 60 minute time periods.

Quote Info	Auction	Indices	Flow
1 min	Buy	Sell	Score
Insert	237	231	
Delete	263	204	-52
Price +	9	5	
Price -	13	18	9
Size +	0	0	
Size -	2	4	1

Level 2 Data

SETS screen continued...

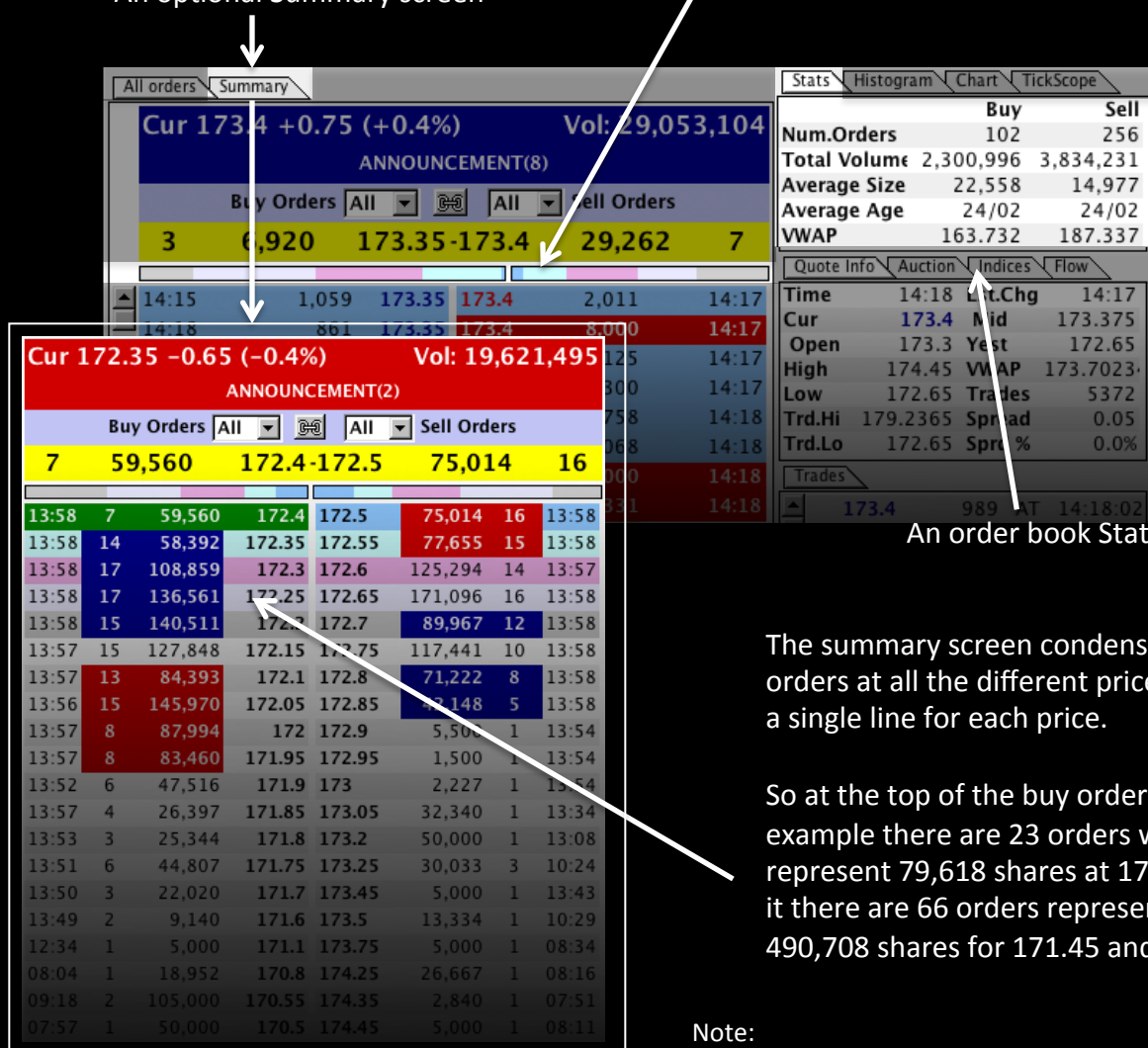
Market depth

Market depth is the term used to describe the price, volume and number of orders that you can see on the Level 2 screen.

ADVFN provide some extra data tools to help you deal with this mass of information.

Graphical bar representing the order book volume at each price level. Colour coded to match the order list beneath.

An optional Summary screen



The summary screen condenses all the orders at all the different price levels into a single line for each price.

So at the top of the buy orders for example there are 23 orders which represent 79,618 shares at 171.5. Beneath it there are 66 orders representing 490,708 shares for 171.45 and so on.

Note:

Colours are slightly different on summary screen

GREEN = Means new price level

BLUE = Increase in price

RED = Decrease in price

Level 2 Data

Market depth can be misleading.

There are two drop downs menus, just above the **Touch**. They control how much of the order book you can see and how much is used for the information displayed in the Stats panel.

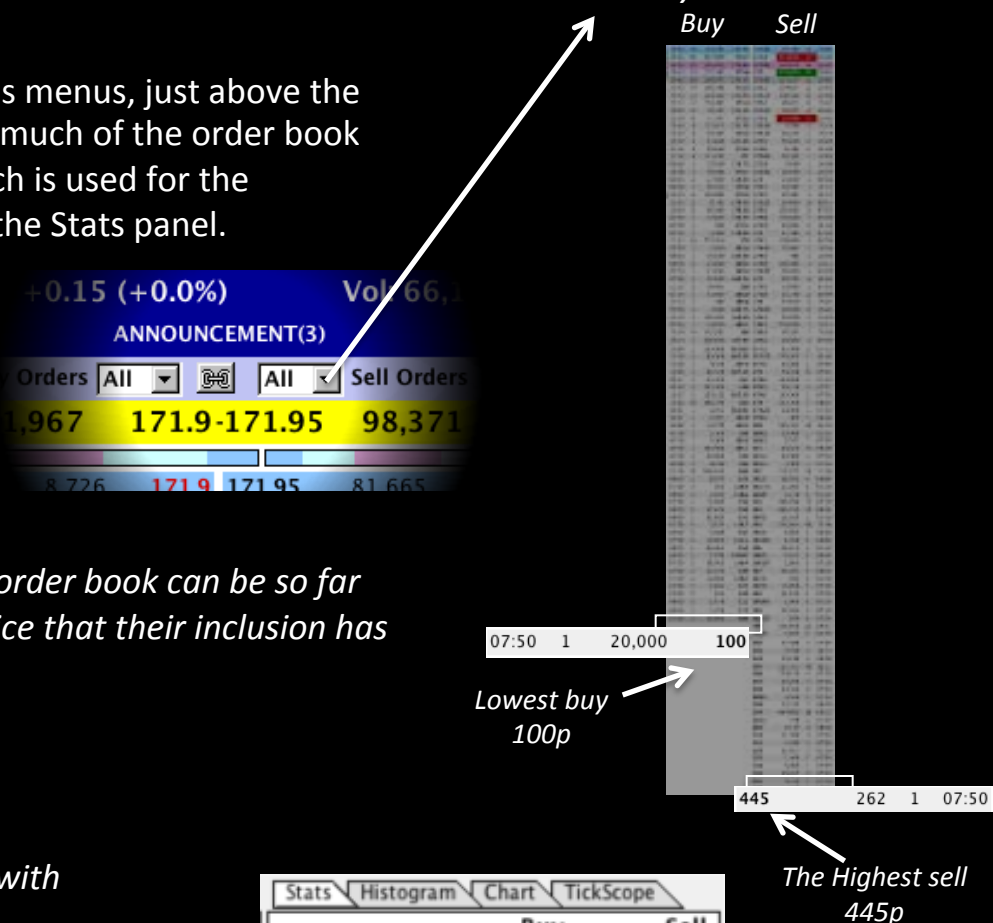
Default position is 'All', which shows you the entire Order book.

Some of the prices in the order book can be so far away from the market price that their inclusion has no real statistical value.

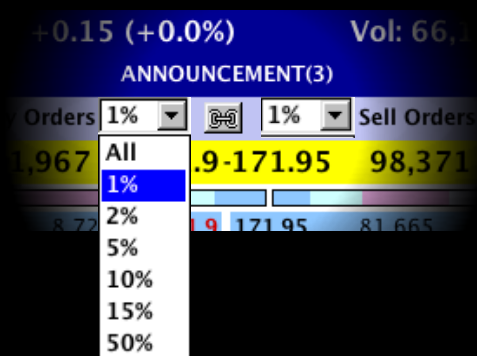
This is the Stats panel with 'All' orders selected.

*There are far more sell than
buy orders.*

*'All' orders generates
a truly massive list*



Now the same data with 1% selected
(This means 1% away from the **Touch**).



Stats	Histogram	Chart	TickScope
		Buy	Sell
Num.Orders		349	487
Total Volume	5,560,250	8,021,650	
Average Size	15,931	16,471	
Average Age	11:44	10:29	
VWAP	166.697	181.578	

Stats	Histogram	Chart	TickScope
		Buy	Sell
Num.Orders		231	180
Total Volume	2,498,228		2,294,071
Average Size	10,814		12,744
Average Age	13:27		15:25
VWAP	170.932		172.179

Now compare the two panels: there are now more buy orders and volume than in the sell orders!

There are as many ways to trade as there are traders; the order book reflects this.

Consider the statement...

“If demand is high and lots of people are buying shares,
the price of share goes up!”

Therefore...

“If lots of people start selling shares the price goes down!”

But hang on ...

“For every sell there has to be someone to sell it to,
someone who is buying the share thus allowing the sell.”

So therefore...

“A large amount of Sells also means a large amount of Buys.”

Which begs the questions...

“Are these people fools?
Why are they buying stock that is going down in value?”

A share going down in price can represent a good buying opportunity. A demand for cheaper shares is not necessarily negative. As Dan Ackroyd said to Eddie Murphy in *Trading Places*.

“Buy low, sell high!”

Level 2 Data

SETS screen continued...

The current price 'Cur' and volume 'Vol' can be found in the box directly above the **Touch**. It also contains an announcement indicator for regulated market news. The background colour of the block depends on where the current price is relative to yesterday's closing price. **Blue for up, red for down, yellow for unchanged.**

*The current price is defined by the last reported AT trade (Automated Trade).
The volume size is the total number of shares that have transacted during that trading day.*

Cur 173.4 +0.75 (+0.4%)				Vol: 29,053,104	
ANNOUNCEMENT(8)					
Buy Orders		All	GO	All	Sell Orders
3	6,920	173.35-173.4		29,262	7
<div></div>					
14:15	1,059	173.35	173.4	2,011	14:17
14:18	861	173.35	173.4	8,000	14:17
14:18	5,000	173.35	173.4	4,125	14:17
13:58	8,000	173.3	173.4	3,300	14:17
13:58	6,000	173.3	173.4	7,758	14:18
14:08	3,000	173.3	173.4	1,068	14:18
14:08	3,500	173.3	173.4	3,000	14:18
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Cur 173.4 +0.75 (+0.4%)						Vol: 29,053,104	
ANNOUNCEMENT(8)							
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14:09	3,625	173.3	173.45	571	14:13		
14:09	6,250	173.3	173.45	4,800	14:13		
14:11	4,812	173.3	173.45	6,000	14:13		
14:11	3,972	173.3	173.45	5,000	14:13		
14:14	21,962	173.3	173.45	8,000	14:14		
14:17	45,164	173.3	173.45	3,625	14:14		
14:18	6,967	173.3	173.45	6,250	14:14		
14:18	6,033	173.3	173.45	3,000	14:14		
12:43	7,604	173.25	173.45	2,000	14:14		
13:13	3,000	173.25	173.45	1,000	14:14		
13:51	9,490	173.25	173.45	1,000	14:14		

Stats		Histogram		Chart		TickScope	
						1/4.5	
						174	
						173.4	
						173	
						172.65	
						172.65	

Quote Info		Auction		Indices		Flow	
Time	14:18	Lst.Chg	14:17				
Cur	173.4	Mid	173.375				
Open	173.3	Yest	172.65				
High	174.45	VWAP	173.7023				
Low	172.65	Trades	5372				
Trd.Hi	179.2365	Spread	0.05				
Trd.Lo	172.65	Sprd %	0.0%				

Trades			
173.4	989	AT	14:18:02
173.4	3,011	AT	14:18:02
173.4	7,200	AT	14:18:02
173.387	77	O	14:17:55
173.363	11,700	O	14:17:41
173.389	10,000	O	14:17:38
173.4	4,171	AT	14:17:06
173.4	100	AT	14:17:06
173.4	2,098	AT	14:17:06
173.387	2,500	O	14:16:36
173.35	1,212	AT	14:16:29
173.387	1,142	O	14:16:25
173.387	1,136	O	14:16:18

Stats Histogram Chart TickScope			
Quote Info Auction Indices Flow			
Time	14:18	Lst.Chg	14:17
Cur	173.4	Mid	173.375
Open	173.3	Yest	172.65
High	174.45	VWAP	173.7023
Low	172.65	Trades	5372
Trd.Hi	179.2365	Spread	0.05
Trd.Lo	172.65	Sprd %	0.0%
Trades			
173.4	989	AT	14:18:02
173.4	3,011	AT	14:18:02
173.4	7,200	AT	14:18:02
173.387	77	O	14:17:55
173.363	11,700	O	14:17:41
173.389	10,000	O	14:17:38
173.4	4,171	AT	14:17:06
173.4	100	AT	14:17:06
173.4	2,098	AT	14:17:06
173.387	2,500	O	14:16:36
173.35	1,212	AT	14:16:29
173.387	1,142	O	14:16:25
173.387	1,136	O	14:16:18

← An interactive intraday chart and tickscope

← Quote data for the stock

← Trade reports tab

Market depth

How deep should I go?

The histogram is a useful tool that gives you an overview of order book depth by depicting order book volume as a simple bar chart.

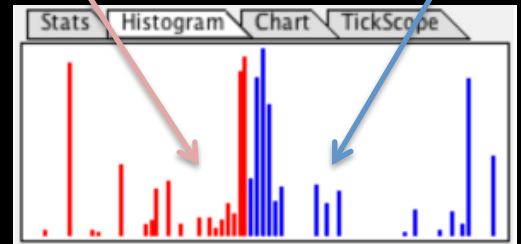
Note: The ADVFN Level 2 histogram displays the percentage of the book that you have selected from the drop down menu above the Touch.



Support and resistance are price levels where the stock price is likely to change direction

Buy orders

Sell orders



High Volumes
outside the spread

Spread

High Volumes
outside the spread

The example above shows a histogram displaying 5% of the order book. As you can see there are some high volumes popping up on the histogram quite a distance from the spread.

Check your charts: these orders maybe sitting on support and resistance levels.

But it is possible that these peaks are 'catcher orders' that are trying to catch price spikes.

The majority of market activity on SETS is automated, driven by black box robot algorithms. Spikes can be caused when these programs become caught in chaotic buying or selling loops. Unchecked and cascading out of control, these robots can cause sudden and catastrophic price movements.

When an aberrant price is detected the market will immediately suspend trading in that stock, effectively short circuiting the robots. The market will then hold an 'auction' to revalue the share and reconstruct the order book. The 'catcher order' has to be placed at a price level before the auction is triggered and the market would suspend trading.

Robots will happily chew through large orders if there is nothing to stop them. By capturing a price movement before the auction tool has activated, the order can Hoover up huge volumes of a share at a bargain basement price. These shares can then be quickly sold back to the market at an inflated margin after the auction. This is of course extremely risky, share prices can plummet for a variety of legitimate reasons, without any hope of a price recovery!

Level 2 Data

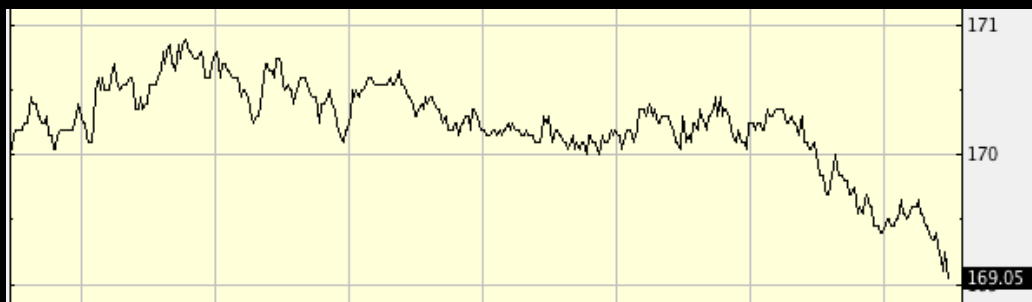
SETS screen continued...

Perhaps the most desirable and requested indicator is one that identifies a potential change in price direction. It is important to stress that this technique requires a **significant change in price direction**. If the share price is going sideways clear signals may quite simply not be there.

Context is everything!

You have to be looking at the right share at the right time.

Many large cap stocks are often caught in a very narrow price band. The chart below is indicative of most of the Sets market activity. The share price is fluctuating within a tight 2p price band; such activity will appear chaotic and is difficult to predict.



To use the order book to identify a potential change in price direction you need to find a more volatile stock, or identify a time when a stock is more likely to be volatile. E.g. a share split, an ex-dividend date or an announcement.

A change in direction is often indicated by a build up of stock volume and an increasing number of orders on one side or other of the order book.

Some order book assumptions

BID

Buy orders on the left

Orders from traders who want to Buy shares at a specific price and take a position in the market.

These traders want to spend as little money as they can to buy a share. These traders could just hit the Offer but they want to improve their entry price.

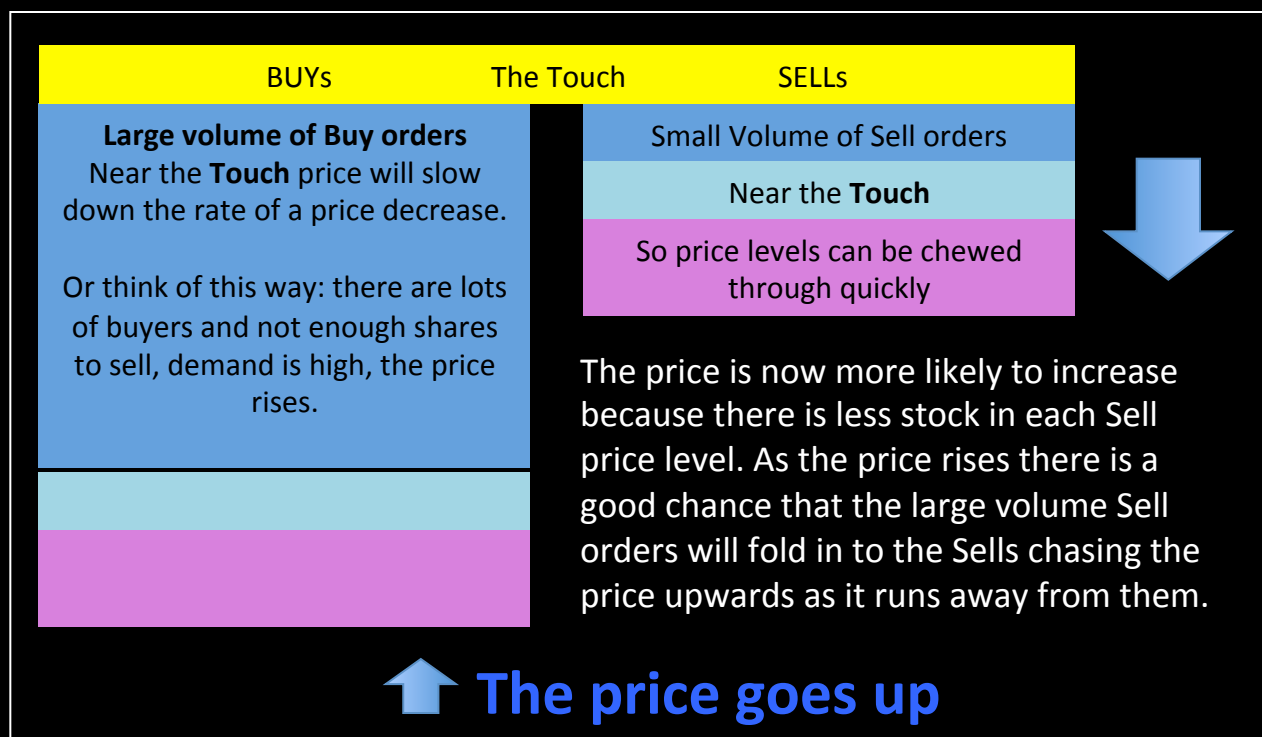
OFFER

Sell orders on the right

Orders from traders who want to Sell shares. They wish to close their position, getting the best price.

These traders want their shares to be as expensive as possible when they sell them. These traders could just hit the Bid, but they want to improve their exit price.

Identifying order book pressure signalling a change in price direction.



See what is actually there! **Not** what you want to see!

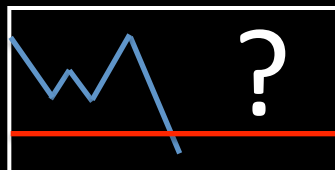
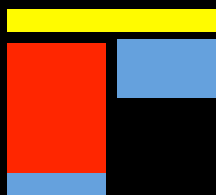
Is your timing right?

You come in to a Level 2 screen: The message may be clear



The price should go down but...

the book might be in the process of rectifying itself...



Has the price already dropped?

Make sure you have got it right!

You may think you have found a good signal but are those order volumes really big enough?

Watch the Level 2 screen, look at the total number of trades, check the historical volumes through the charts page. See if the order volumes actually represent a genuine obstacle that may change price direction.



ADVFN has included many Level 1 panels on the Level 2 screen. This helps to speed up your research and saves you from having to move away from the Level 2 screen.

There are some things that Level 2 cannot tell you, like the volume of trades that hit the touch without appearing in the order book. There are also some orders that are partially or completely hidden from view.

By watching Level 2 you can start to get a feel for these as you watch how the book behaves.

Iceberg orders

orders Summary						
Cur 173.4 +0.75 (+0.4%)				Vol: 29,053,104		
ANNOUNCEMENT(8)						
Buy Orders		All		All	Sell Orders	
3	6,920	173.35-173.4		29,262	7	
14:15	1,059	173.35	173.4	2,011	14:17	
14:18	861	173.35	173.4	8,000	14:17	
14:18	5,000	173.35	173.4	4,125	14:17	
13:58	8,000	173.3	173.4	3,300	14:17	
13:58	6,000	173.3	173.4	7,758	14:18	
14:08	3,000	173.3	173.4	1,068	14:18	
14:08	3,500	173.3	173.4	3,000	14:18	
14:09	4,000	173.3	173.4	2,331	14:18	
14:09	3,000	173.3	173.45	3,000	14:12	
14:09	3,625	173.3	173.45	571	14:13	
14:09	6,250	173.3	173.45	4,800	14:13	
14:11	4,812	173.3	173.45	6,000	14:13	
14:11	3,972	173.3	173.45	5,000	14:13	
14:14	21,962	173.3	173.45	8,000	14:14	
14:17	45,164	173.3	173.45	3,625	14:14	
14:18	6,967	173.3	173.45	6,250	14:14	
14:18	6,033	173.3	173.45	3,000	14:14	
12:43	7,604	173.25	173.45	2,000	14:14	
13:13	3,000	173.25	173.45	1,000	14:14	
13:51	9,490	173.25	173.45	1,000	14:14	

An iceberg only shows about an eighth of its mass above water: the majority stays hidden under the sea. Iceberg orders, like their gelid namesakes, don't reveal their true size in the order book.

An iceberg order will contain a massive volume of stocks but it will display only a small amount of its true volume.

When an iceberg's displayed Volume is filled, its date stamp is updated and the order will return to the end of the queue to wait for its turn to be filled again. This will continue until its total volume at that price level has been traded.

The individual limit order chunks of an iceberg are limited in size by rules imposed by the exchange. When each order chunk is filled a new limit order is re-entered at the same price level, entering the book at the end of the queue. These orders can cause unexpected barriers to price movement, and create support and resistance levels.

Iceberg orders are there so institutions can trade the exchange without skewing the share price in normal trading hours.

ADVFN Level 3 Montage Data

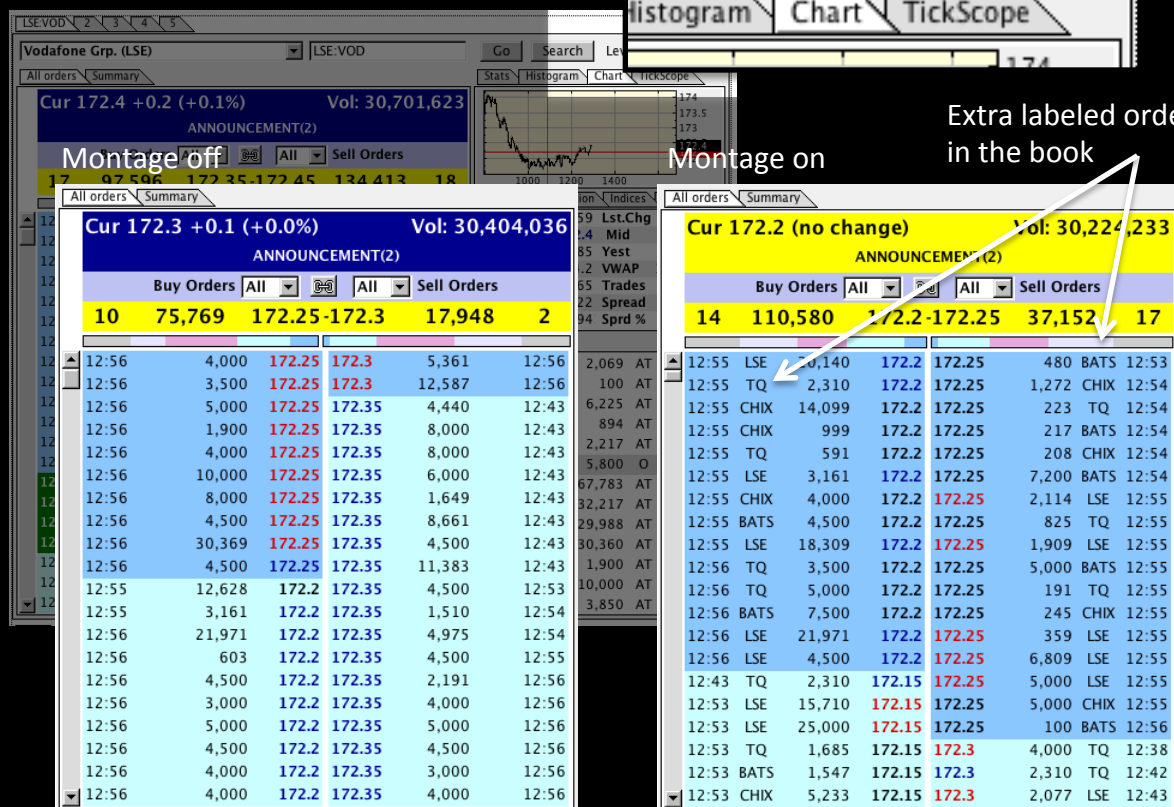
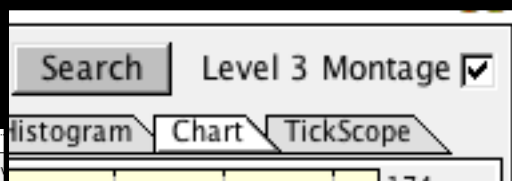
Traditionally, to trade a share you would go to the exchange on which the share was listed and trade it through that exchange. Occasionally, companies would be listed separately on more than one market but that was about as exciting as it got.

Now we have Multilateral Trading Facilities (MTFs), a new breed of quasi-exchange. MTFs can trade stocks listed on major exchanges, matching and executing orders away from the shares indigenous exchange. It has been estimated that as much as 40% of LSE shares are now traded off book through these MTFs. MTFs have to be transparent about their trading and publish transactions in real-time, though there are specific exemptions. The largest of these MTFs is Chi-X, which is now one of the largest trading venues in Europe.

Your broker should have access to these MTFs, so should always be able to get you the best price. Some DMA (Direct Market Access) services may not be fully compatible with the new broker crossing systems that MTFs use, so make sure to ask.

With the Montage turned on, an LSE stock's Level 2 screen on ADVFN will show you all the orders on the main exchange, along with the labeled MTF orders.

You can turn Montage on and off using the tick box in the top right hand corner



ADVFN Level 3 Montage Data

Much of the top of the book is now populated by these MTF orders, providing you with a far more complete version of the market.

Sometimes the MTF trades can cause the book to 'cross', meaning the Bid becomes higher than the Offer. Trading with these orders has become essential. The MTFs for the LSE are CHIX, Turquoise (TQ), and BATS.

Note: Level 3 montage is also available to Level 2 ADVFN subscribers on the trades reports page

Level 3 Montage ☒

Vodafone Grp. (LSE) LSE:VOD OK Search A-Z Free Vodafone Annual Company Report Level 3 Montage ☒ Help Minimise Download trades data

Historical trades available: 05/04/2012 Trades Most recent streaming

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Num	Exch.	Price	Size	Type	C	T	Bid	Offer	Time	Buy	Sell	?	Buy Ind.	Buy Vol.	Sell Vol.	? Vol.
11765	LSE	171.272	20,074				171.8	171.9	17:01:02	0	20,074	0		44,342,283	31,627,591	9,086,760
11764	LSE	170.475	50,000				171.8	171.9	16:54:23	0	50,000	0		44,342,283	31,607,517	9,086,760
11762	LSE	171.852	651,041				171.8	171.9	16:45:45	651,041	0	0		44,328,599	31,557,517	9,086,760
11761	LSE	171.502	82,600				171.8	171.9	16:45:16	0	82,600	0		43,677,558	31,557,517	9,086,760
11760	LSE	171.502	70,600				171.8	171.9	16:45:16	0	70,600	0		43,677,558	31,474,917	9,086,760
11759	LSE	171.45	8,425				171.8	171.9	16:45:01	0	8,425	0		43,677,558	31,404,317	9,086,760
11758	LSE	171.9	890				171.8	171.9	16:45:01	890	0	0		43,677,558	31,395,892	9,086,760
11757	LSE	171.034	44,100	C			171.8	171.9	16:44:17	0	44,100	0		43,676,668	31,395,892	9,086,760
11756	LSE	171.95	100,883				171.8	171.9	16:40:18	100,883	0	0		43,676,668	31,351,792	9,086,760
11755	LSE	171.95	1,924,641				171.8	171.9	16:39:06	1,924,641	0	0		43,575,785	31,351,792	9,086,760
11754	LSE	171.95	13,000				171.8	171.9	16:38:52	13,000	0	0		41,651,144	31,351,792	9,086,760
11753	LSE	171.95	23,888				171.8	171.9	16:38:32	23,888	0	0		41,638,144	31,351,792	9,086,760
11763	LSE	171.94	13,684				171.8	171.9	16:38:22	13,684	0	0		44,342,283	31,557,517	9,086,760
11752	LSE	171.935	13,684				171.8	171.9	16:38:22	13,684	0	0		41,614,256	31,351,792	9,086,760
11751	LSE	171.95	24,906				171.8	171.9	16:37:16	24,906	0	0		41,600,572	31,351,792	9,086,760
11749	LSE	171.95	8,083,798	UT			171.8	171.9	16:35:14	0	8,083,798	0		41,555,567	31,351,792	9,086,760
11750	LSE	171.95	20,099				171.8	171.9	16:35:06	20,099	0	0		41,575,666	31,351,792	9,086,760
3168	TQ	171.85	10,000				171.8	171.9	16:29:47	0	0	10,000		2,779,714	3,363,658	1,596,673
8079	CHIX	171.85	20,000				171.85	171.9	16:29:47	0	20,000	0		9,122,944	8,536,607	4,583,900
2617	BATS	171.85	2,005				171.85	171.9	16:29:41	0	2,005	0		2,648,598	3,021,674	948,859
2616	BATS	171.85	20,000				171.85	171.9	16:29:41	0	20,000	0		2,648,598	3,019,669	948,859
3167	TQ	171.85	10,000				171.8	171.9	16:29:41	0	0	10,000		2,779,714	3,363,658	1,586,673
8078	CHIX	171.85	20,000				171.8	171.9	16:29:41	0	0	20,000		9,122,944	8,516,607	4,583,900
2615	BATS	171.85	4,180				171.85	171.9	16:29:25	0	4,180	0		2,648,598	2,999,669	948,859
11746	LSE	171.85	75,000				171.8	171.9	16:29:23	0	75,000	0		41,555,567	31,351,792	1,002,962

Labeled trades from different exchanges

The Auction

Auctions are the stock market's safety net, protecting it from technical failure, stupidity and some of the more blatant forms of market manipulation.

To prevent SETS stocks being skewed by deliberately disruptive orders, the market hold auctions at the start and end of each day. These auctions establish an opening and closing price of each stock. Auctions can also be triggered during the trading day, serving to restore balance in a share price that maybe running out of control.

Auctions are not just to protect individual stock prices, cumulatively they help to protect the entire market. Black Monday, 19 October 1987, wiped billions off markets' values across the world. Automated trading was largely blamed for this event; first by over-inflating share prices, then sending them into free fall.

There are 2 intraday auction triggers

- 1) If the price moves more than 10% away from the last auction price.
- 2) If the price of next best order is more than 5% away from the last automatic trade.

Cur 491.75 -7.3 (-1.5%)		Vol: 20,223,541	
AUCTION ANNOUNCEMENT(1)			
Buy Orders	All	All	Sell Orders
1	1,524	506.5-462.25	300,000 1

16:30	15,000	MKT	MKT	687	16:30
16:30	46,475	MKT	MKT	283,700	16:30
16:30	73,965	MKT	MKT	7,615	16:30
16:30	8,444	MKT	MKT	33,091	16:30
16:30	15,594	MKT	MKT	13,100	16:30
16:30	45,348	MKT	MKT	22,559	16:30
16:30	40,162	MKT	MKT	36,363	16:30
16:30	35,559	521.2	492	2,000	16:30
16:30	1,524	506.5	492	1,000	16:30

16:30	45.21	Cur 491.75 -7.3 (-1.5%)				Vol: 20,243,866	
16:30	2.00	AUCTION ANNOUNCEMENT(1)					
16:30	1.00						
16:30	1.50						
16:30	50	Buy Orders		All	All	Sell Orders	
16:18	84	3	186,448	521.2-462.25	422,526	6	

16:30	15,000	MKT	MKT	687	16:30
16:30	46,475	MKT	MKT	283,700	16:30
16:30	73,965	MKT	MKT	7,615	16:30
16:30	8,444	MKT	MKT	33,091	16:30
16:30	15,594	MKT	MKT	13,100	16:30
16:30	45,348	MKT	MKT	22,559	16:30
16:30	40,162	MKT	MKT	36,363	16:30
16:30	73,450	MKT	MKT	36,363	16:30
16:30	4,779				
16:30	72,725				
16:30	50,564				
16:30	6,970				
16:30	35,559				
16:30	116,571				
16:30	34,318				
16:30	24,202				
16:30	1,524				
16:30	72,725				
16:30	7,912				
16:30	6,463				

Cur 491.75 -7.3 (-1.5%)		Vol: 20,243,866	
AUCTION ANNOUNCEMENT(1)			
Buy Orders		All	All Sell Orders
4	341.893	521.2-462.25	122,526 5

16:30	15,000	MKT	MKT	687	16:30
16:30	46,475	MKT	MKT	283,700	16:30
16:30	73,965	MKT	MKT	7,615	16:30
16:30	8,444	MKT	MKT	33,091	16:30
16:30	15,594	MKT	MKT	13,100	16:30
16:30	45,348	MKT	MKT	22,559	16:30
16:30	40,162	MKT	MKT	36,363	16:30
16:30	73,450	MKT	MKT	36,363	16:30
16:30	4,779	MKT	MKT	36,363	16:30
16:30	50,564	MKT	MKT	36,363	16:30
16:30	6,970	MKT	MKT	36,363	16:30
16:30	19,526	MKT	MKT	36,363	16:30
16:30	234,648	MKT	MKT	36,363	16:30
16:30	2,723	MKT	MKT	36,363	16:30
16:30	153	MKT	MKT	12,530	16:30
16:30	43,354	MKT	MKT	36,363	16:30
16:30	267	MKT	MKT	191	16:30
16:30	169	MKT	MKT	138,797	16:30
16:30	250	MKT	MKT	36,363	16:30
16:30	326,992	MKT	MKT	8,550	16:30

When an auction is triggered, automated trading is suspended, and the top of the order book fills up with yellow "MKT" (market orders).

'Market' orders have no stipulated price, they are orders that want to be filled, whatever the price is!

Many of these market orders will be made by institutions. Institutions use the auctions because their participation in normal market trading could easily deform the market price.

As the MKT orders pour into the top of the book, the prices of normal Buy and Sell orders can cross each other. Under normal trading conditions this would be impossible: a Bid higher than an Offer would be immediately filled.

For an auction to occur it is essential that the prices cross over

1	1,524	506.5-462.25	300,000	1
---	-------	--------------	---------	---

AUCTION ANNOUNCEMENT (1)				
Buy Orders (All)	Buy	Sell	Sell Orders	
1	1,524	506.5-462.25	300,000	1
16:30	15,000	MKT	MKT	16:30
16:30	48,475	MKT	MKT	281,700 16:30
16:30	73,965	MKT	MKT	7,615 16:30
16:30	8,444	MKT	MKT	11,091 16:30
16:30	15,594	MKT	462.25	300,000 16:30
16:30	45,348	MKT	479.5	1,262,61 16:30
16:30	40,162	MKT	486.85	7,564 16:30
16:30	35,559	521.2	492	2,000 16:30
16:30	1,524	506.5	492	1,000 16:30
16:30	45,210	491.75	492	3,000 16:30

15,594	MKT	462.25	300,000
45,348	MKT	479.5	1,262,61
40,162	MKT	486.85	7,564
35,559	521.2	492	2,000
1,524	506.5	492	1,000
45,210	491.75	492	3,000

The question is **WHY?**

Why would any trader place such high Bids or low Offers?

Why not just put in more realistic Buys and Sells?

Of course, they are not expecting orders to be filled at these prices. The unrealistic levels they have entered seeks to put them at the top of the list. Trying to ensure that their orders are finally filled at the “uncrossing price” when the auction is complete.

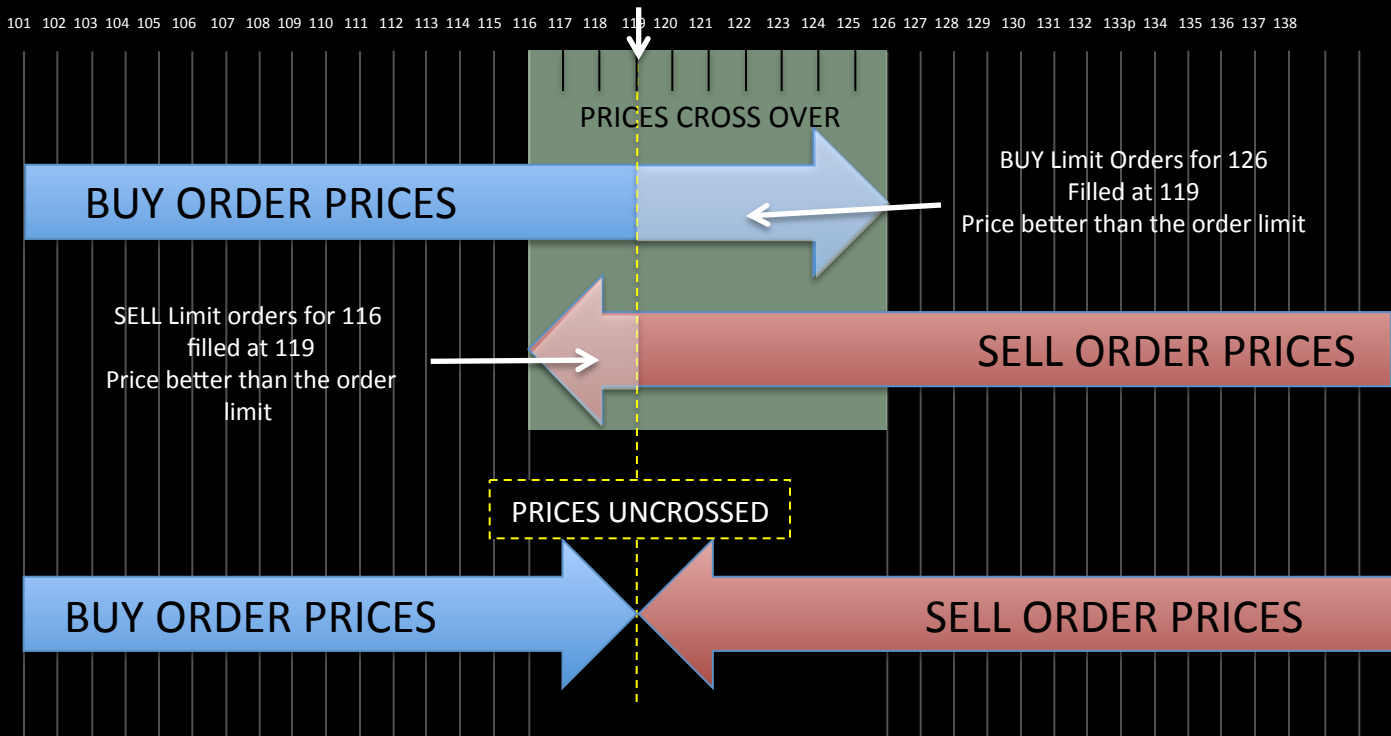
There are 3 concepts that need to be understood

1. An auction's time period, (which can be between 5 - 15mins) is only there to allow the order book volume to fill up with MKT and limit orders. The auction program is very simple and executes at the end of the time period.

2. The function of the auction program is to find an **uncrossing price** at which the **highest volume** of shares can be traded.

3. The price attached to a limit order is just that, the limit. For example a 10p buy Limit Order can buy a stock at any price up to 10p (for instance 3p, 7p, 6.2479p).

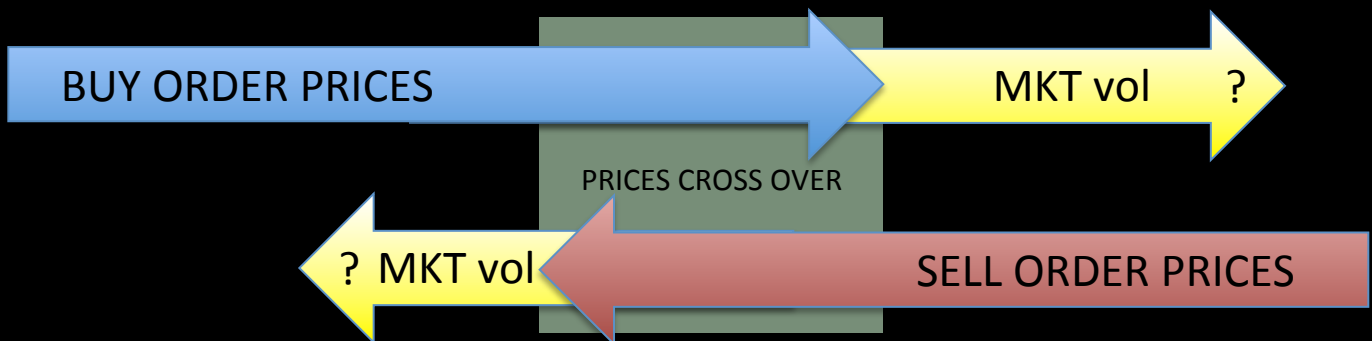
The auction has to find a price to uncross the order book



A UT (Uncrossed Trade) and price is reported

The auction decides on the uncrossing price based on where it can trade the largest volume of shares.

The volume of MKT orders and the side of the book they are on can influence the eventual uncrossing price.



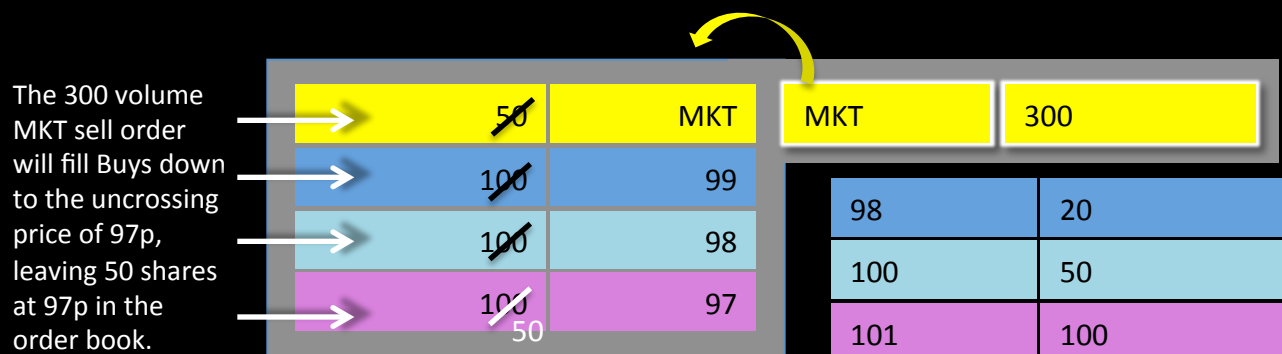
The Auction

In the next 2 examples we will describe how an uncrossing price is reached.

In this first example 97p becomes the uncrossing price.

50	MKT	MKT	300
100	99	98	20
100	98	100	50
100	97	101	100

Why 97p? Because the Sell MKT order for 300 shares allows for the highest volume of shares to be matched against the buy side of the book.



The buy MKT orders and the Limit Orders for 99p, 98p and 97p are all filled at 97p.

These Limit Orders of 99p and 98p are improved because they have been filled at a better price than their limit.

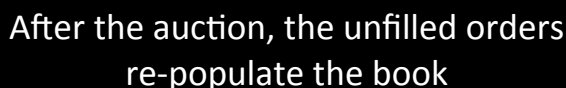
A "UT" (uncrossing trade) is then reported at 97p volume 300

50	97	98	20
40	96	100	50
60	95	101	100

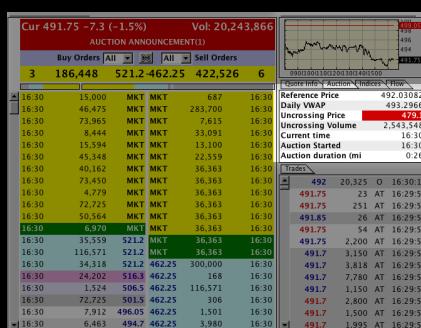
The other orders left from the auction have now filled the book and allow trading to restart. (unless it's the closing auction, which defines the closing price after which the order book is dismantled).

200	104	MKT	100
100	103	100	50
100	102	101	50
100	101	102	250

The Sell Limit Order for 250 shares allows for the highest volume of shares to be matched against the Buy side of the book.



To help you follow what is going on in the auction ADVFN provides you with an Auction panel.



The Auction Panel

Quote Info	Auction	Indices	Flow
Reference Price			492.041
Daily VWAP			493.2966
Uncrossing Price			492.9
Uncrossing Volume			8,021,618
Current time			16:34
Auction Started			16:30
Auction duration (mi			4:43

Market open auction

07.50 to 08.00

During this period, orders can be entered but will not be executed.

To prevent rogue orders at the end of the auction, there is a random period of up to 30 seconds added before the uncrossing price is calculated.

Extensions

An extra 2 minutes can be added (plus the random 30 seconds) if unexecuted market orders are left on the book.

An extra 2 minutes can be added (plus the random 30 seconds) if the uncrossing price is more than 20% way from the last AT (automated trade).

Each extension can only happen once per auction.

Even with the extensions, if the order book fails to clear all market orders and/or fails to reach a price within 20% of the last AT trade, the auction will set the uncrossing price at the previous days last AT trade.

Auctions triggered during the trading day

After open, before 16:12

These are triggered:

- 1) If the price moves more than 10% away from the last auction price.
- 2) If the price of next best order is more than 5% away from the last automatic trade.

Extensions

An extra 2 minutes would be added (plus the random 30 seconds) if unexecuted market orders are left on the book.

If the prices do not cross, trading will resume, setting the first AT trade after the market resumes as the current price.

Auctions triggered to end trading period

16:30 – 16:35

To prevent rogue orders, at the end of the auction period there is a random period of up to 30 seconds added before the uncrossing price is calculated.

In the last 10 minutes of normal trading the VWAP (Value Weighted Average Price) is calculated. This average price provides the criteria for further auction extension.

As with the opening auction, an extension is triggered if there are MKT orders still on the book.

The auction is only extended if the uncrossing price is more than 20% away from the VWAP (not last AT trade). If the extensions fail then the VWAP sets the closing price.

Next part coming soon
from

ADVFN

UK Level 2

SEAO