Part 2

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# LEVEL 2 SETS screen

In the second part of this article we will be looking at the SETS system, where the Big Cap stocks of the FTSE 100 trade. SETS is an automated market where buy and sell orders are listed on the bid and offer. Whereas Level 2 for SEAQ represents a list of a number of market maker firms prepared to buy or sell, SETS Level 2 lists specific orders. These orders can be lodged by anyone with direct market access, which can be traders, brokers, market makers or even trading programs.

## The sets order book

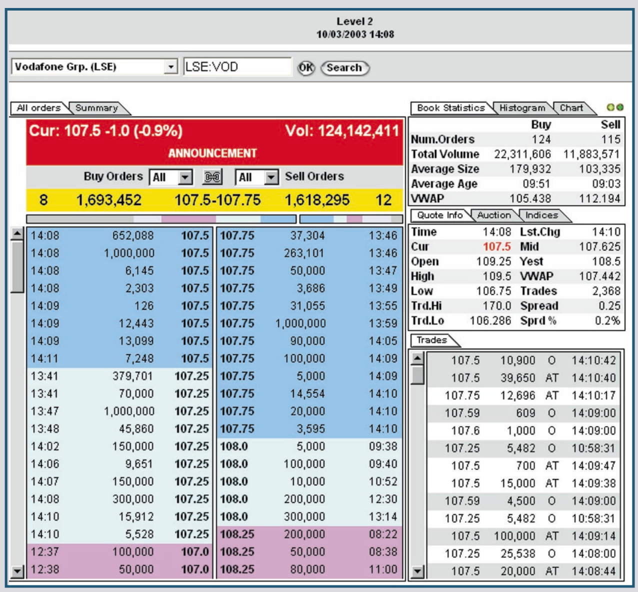
Imagine the SETS order book as two piles of paper: one of buy orders and one of sell orders. You can take from each pile or add to them, depending on how you want to trade. If, for example, you have a sell order which is the same as an order on the bid, the orders will be matched and filled. In other words, you would have sold the shares at the price of the best bid order and the amount of stock you sold will be removed from the buy side of the order book. Matching is purely the act of a buy and sell order being at the same price. When a buy and sell order are matched this transaction becomes a trade which is then registered and transmitted to the market.

The SETS book has a bid column and an offer column just like the SEAQ book, except that these Offers are orders from the market rather than a group of market makers. A buyer or seller with access to the SETS book can put a buy or sell order into the book at any price, and this offer is limited to the volume of shares he wishes to trade. He could, for example, put a sell order in at a high price and at the same time put a buy order in at a low price level. As these prices would be worse than the best bid and offer, they would sit in the order book waiting to be filled by a change in price. The price change and volume of demand will determine when and if these orders will be filled.

The price of a stock is set at the price of the last transaction which can be either the cheapest in the offer column or the most expensive in the bid column. The official price of a SETS stock is the last AT trade, which is the trade type of a SETS transaction. The spread is determined by the gap between the

## F1) Vodafone

SETS is very different from SEAQ and aimed at coping with the vast liquidity of shares like Vodafone, where hundreds of millions of pounds change hands everyday.



Level 2
10/03/2003 14:08

Vodafone Grp. (LSE) | LSE:VOD | OK | Search

All orders | Summary

Cur: 107.5 -1.0 (-0.9%) Vol: 124,142,411
ANNOUNCEMENT
Buy Orders All | All Sell Orders

| 8 | 1,693,452 | 107.5-107.75 | 1,618,295 | 12 |
|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 14:08 | 652,088 | 107.5 | 107.75 | 37,304 | 13:46 |
| 14:08 | 1,000,000 | 107.5 | 107.75 | 263,101 | 13:46 |
| 14:08 | 6,145 | 107.5 | 107.75 | 50,000 | 13:47 |
| 14:08 | 2,303 | 107.5 | 107.75 | 3,686 | 13:49 |
| 14:09 | 126 | 107.5 | 107.75 | 31,055 | 13:55 |
| 14:09 | 12,443 | 107.5 | 107.75 | 1,000,000 | 13:59 |
| 14:09 | 13,099 | 107.5 | 107.75 | 90,000 | 14:05 |
| 14:11 | 7,248 | 107.5 | 107.75 | 100,000 | 14:09 |
| 13:41 | 379,701 | 107.25 | 107.75 | 5,000 | 14:09 |
| 13:41 | 70,000 | 107.25 | 107.75 | 14,554 | 14:10 |
| 13:47 | 1,000,000 | 107.25 | 107.75 | 20,000 | 14:10 |
| 13:48 | 45,860 | 107.25 | 107.75 | 3,595 | 14:10 |
| 14:02 | 150,000 | 107.25 | 108.0 | 5,000 | 09:38 |
| 14:06 | 9,651 | 107.25 | 108.0 | 100,000 | 09:40 |
| 14:07 | 150,000 | 107.25 | 108.0 | 10,000 | 10:52 |
| 14:08 | 300,000 | 107.25 | 108.0 | 200,000 | 12:30 |
| 14:10 | 15,912 | 107.25 | 108.0 | 300,000 | 13:14 |
| 14:10 | 5,528 | 107.25 | 108.25 | 200,000 | 08:22 |
| 12:37 | 100,000 | 107.0 | 108.25 | 50,000 | 08:38 |
| 12:38 | 50,000 | 107.0 | 108.25 | 80,000 | 11:00 |

Book Statistics | Histogram | Chart

| | Buy | Sell |
|---|---|---|
| Num.Orders | 124 | 115 |
| Total Volume | 22,311,606 | 11,883,571 |
| Average Size | 179,932 | 103,335 |
| Average Age | 09:51 | 09:03 |
| VWAP | 105.438 | 112.194 |

Quote Info | Auction | Indices

| | | | |
|---|---|---|---|
| Time | 14:08 | Lst.Chg | 14:10 |
| Cur | 107.5 | Mid | 107.625 |
| Open | 109.25 | Yest | 108.5 |
| High | 109.5 | VWAP | 107.442 |
| Low | 106.75 | Trades | 2,368 |
| Trd.Hi | 170.0 | Spread | 0.25 |
| Trd.Lo | 106.286 | Sprd % | 0.2% |

Trades

| | | | |
|---|---|---|---|
| 107.5 | 10,900 | O | 14:10:42 |
| 107.5 | 39,650 | AT | 14:10:40 |
| 107.75 | 12,696 | AT | 14:10:17 |
| 107.59 | 609 | O | 14:09:00 |
| 107.6 | 1,000 | O | 14:09:00 |
| 107.25 | 5,482 | O | 10:58:31 |
| 107.5 | 700 | AT | 14:09:47 |
| 107.5 | 15,000 | AT | 14:09:38 |
| 107.59 | 4,500 | O | 14:09:00 |
| 107.25 | 5,482 | O | 10:58:31 |
| 107.5 | 100,000 | AT | 14:09:14 |
| 107.25 | 25,538 | O | 14:08:00 |
| 107.5 | 20,000 | AT | 14:08:44 |

Source: www.advfn.com

highest unfilled bid order and the lowest unfilled offer.

The SETS book operates by orders being taken off the book by a trade meeting its price and by the placing of orders into the book to await a party to accept the price of that order. In this way an order book builds up for a stock both on the buy side called the *bid* and the sell side called the *offer*. A share may have a bid offer spread of 9p and 10p but there will be customers wanting to sell at 11p or buy at 8p. As demand and supply fluctuate for a share, so the bid and offer will change. While the bid and offer price will be affected by buys and sells, it will also be affected by new orders or by the withdrawal of old orders.

Orders can be entered into the book but they can also be removed by deletion. The sell order at 11p may sit on the book while the offer price falls to 9p. The 11p offer might then be deleted and re-entered at 9.5p, or if the customer were keen to sell, at 9p, where it is likely to be filled. The order alternately might take the bid price of 8p; and if there is enough volume at the bid to fill the order, then the order would not appear in the book at all.

### What stocks are traded on the system?

Because SETS is an automated system, it is believed that only stocks with a large number of daily trades to be executed are suited to the system. This means that SETS stocks are mainly the largest companies listed on the LSE. While there are small cap companies listed as SETS stock, many of these were big cap stocks, like QXL, listed during the tech boom.

The automated nature of the system and the volume of orders processed means that the spread in a SETS stock can be wafer thin. Whereas a big SEAQ stock like AMY will have a 2% spread, a small SETS stock like Whitbread will have a spread of 0.2%. The impact of this dramatically lowers the trading cost; and greater liquidity attracts traders, as they have a smaller hurdle to leap to make a profit.

### Gapping

In an illiquid stock, price moves can be discontinuous – a feature known as 'Gapping'. Gapping is when a share is, for example, 100p and suddenly falls or rises by 10p without trading at the many price levels between. As the SETS system is automated, and there is greater liquidity, the chances of gapping are much lower. Thus, a trader has much better ability to enter and exit the market with less risk of getting caught by a dramatic move which would leave him unable to cover his position. As you can see by a VOD intraday chart (Figure 2), there are many movements in price, but the increments are small. This liquidity with the low costs of the spread make mastery of the SETS book an important skill for a short term trader.

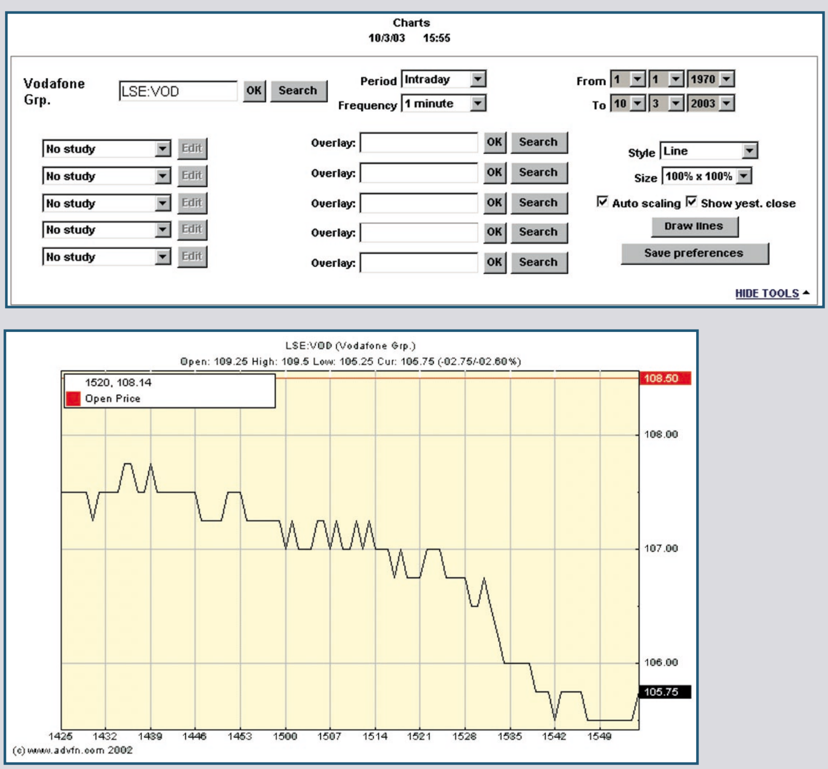
### Depth Indicator

The Depth Indicator on the SETS screen tells the viewer how many orders are in the book on each side, which gives the number of buyers and sellers with orders on this stock. The buy Order/Sell Order filter gives a Level 2 user the ability to cut out all orders at a certain percentage away from the bid and offer.

This Order book filter allows the Level 2 users to concentrate on price levels of order interest in a stock. A trader may consider orders more that 5% away from the bid and offer irrelevant, as they are looking for a short term move of 2%-3%. If interested in a move of less than 1%, a trader might filter out all the orders beyond this point. The Level 2 screen then shows only the orders within these parameters and gives the depth of the market within this range.

The Level 2 screen shows the volumes on offer within the selected range, the depth, and the number of shares and orders

F2) Vodafone Intraday



on both sides of the bid and offer. As transactions are made, they are taken from the book and put into the Trades column.

### F3) SETS Book Toplist

Orders within 5% of price | sorted by number % | Go!

| EPIC | Buy Num% | Buy Vol% | EPIC | Sell Num% | Sell Vol% |
|---|---|---|---|---|---|
| CAT | 87.50 | 84.84 | MFI | 80.00 | 76.76 |
| CPW | 83.33 | 76.37 | ALLD | 80.00 | 78.96 |
| KEL | 82.61 | 80.44 | ECM | 77.78 | 58.33 |
| PFG | 78.57 | 61.24 | WMH | 76.92 | 59.44 |
| CRH | 78.26 | 74.54 | FP. | 76.19 | 66.60 |
| SKP | 77.78 | 65.10 | EXL | 76.00 | 34.57 |
| FRCL | 76.92 | 69.82 | IBIO | 75.00 | 67.74 |
| AWG | 76.00 | 80.18 | BLZ | 75.00 | 91.74 |
| EMA | 75.00 | 58.54 | SPW | 74.29 | 56.11 |
| BBA | 73.33 | 80.67 | III | 73.68 | 82.15 |
| ANL | 72.09 | 73.32 | AHM | 73.53 | 80.12 |
| THUS | 71.43 | 80.77 | PILK | 72.73 | 86.25 |
| ICI | 70.59 | 87.28 | AGS | 72.73 | 67.72 |
| BB. | 70.00 | 70.47 | RSA | 72.22 | 68.83 |
| AZN | 67.39 | 63.75 | LGEN | 72.09 | 66.20 |
| QXL | 66.67 | 34.78 | IUTL | 71.43 | 61.54 |
| LANB | 66.67 | 66.67 | AVZ | 71.43 | 62.99 |
| ICYC | 66.67 | 64.52 | AGK | 71.43 | 50.05 |
| CS. | 66.67 | 54.28 | AL. | 70.00 | 64.29 |
| CHB | 66.67 | 72.71 | ABP | 70.00 | 62.09 |

## Interpreting the SETS book

At any given moment the SETS book price is stationary and a price move can be considered to be instantaneous. That is to say, you can not trade a price move as it happens; you may only preempt it or observe that it has happened. This means you must interpret the SETS screen using the information on it to judge what will happen next.

Volume on the buy and sell side is an indicator of supply and demand within the price range you have selected. The narrower the range you select with the filter, the shorter term the horizon you are watching. In this way you would expect a share at 99/100, with 20 bids totalling 1,000,000 shares at 99 against one offer of 10,000 shares at 100, to move higher in the immediate short term. However, if there were an offer of 10,000,000 at 102, you would expect that the price might not move easily beyond this point.

In this way the SETS book can be seen as a snapshot of current price sentiment for a stock. The distribution of prices gives an insight to how the market judges the value of a share as a distribution of prices around the balancing point of the bid and offer. These distributions can be seen as support and resistance for a price move.

New information will shift these distributions as trades are made at the bid and offer and new orders are entered or deleted around this price. The change of this distribution represents the change of the likely future of the price and can be used to pre-empt a move – and hence – capture a profit.

For example: a piece of bad news on a share would result in a shift in sentiment. That would create sellers which would fill bid orders; and likewise, lower offer orders would begin to fill the offer side of the book. As bid/offers dry up as a result of seller demand, the highest outstanding buy order price would fall and the lowest offer price would also fall. Deletions of orders on the bid side would speed the fall – hence the price of the stock would drop. If the meaning of the news was not understood and uncertainty increased, then sellers would decrease, as would buys, and so the spread would increase to reflect the increased risk in trading. Conversely, if the future movement of the stock was felt to be stable, the spread would shrink.

## Distribution

In a perfect world, a SETS book would show what is called a 'normal distribution' of buy and sell orders. This distribution is often know as a 'Bell Curve' with the bid and offer cutting through the centre of it. This is to say the price range and volume, if plotted, would form a symmetrical hill with a gap in the middle representing where trading takes place. Happily for traders, the real world is not so symmetrical. While the biggest, most liquid stocks have order books that tend towards this model, most exhibit characteristics far from this theoretical model.

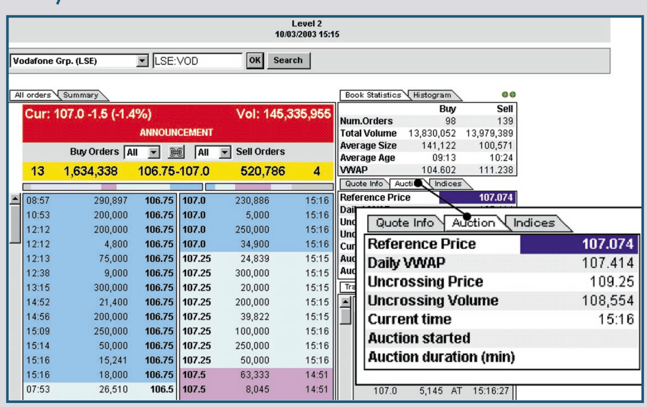
The simplest form of this discontinuity can be seen as 'gaps in the order book'. Most orders and most of the volume in an order book will be clumped around the bid and offer, and these volumes will fall away as their distance from the bid and offer increases. However, in some instances, there are no orders at all in price ranges on either side of the bid and offer.

For example: Stock AAA has 100,000 shares in the buy book between 97 and 99, and 100,000 in the sell book between 101 and 102. We imagine that the buy book has 50,000 share orders down to 90p. However, the sell book has no order between 102 and 105, but after that has sell orders of 50,000 all the way to 110.

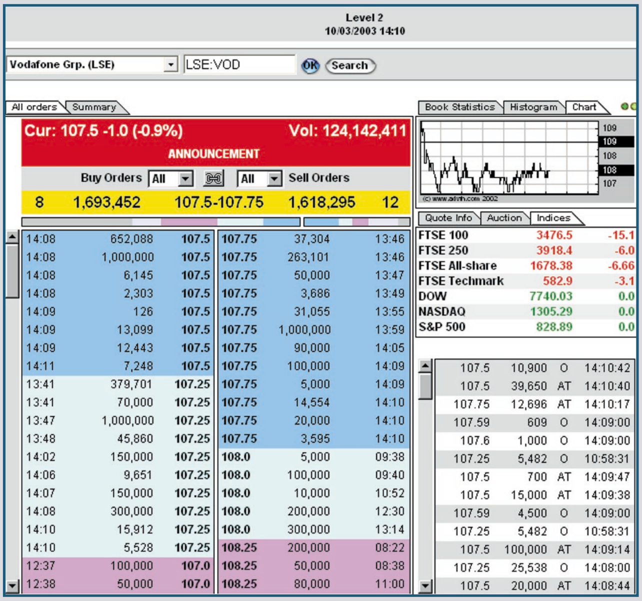
There is a gap in the sell order book between 102 and 105. This tells us two things: no one wants to sell at these prices, while buyers are comfortable to buy all the way down – so there appears to be less overall keenness to sell than buy. More importantly, it tells us that should the sell order be filled to 102, then the price should jump straight to 105. This gap can be looked at as a vacuum pulling the price in its direction. As time passes this gap will be filled or the price will rise to pass it – much in the way a bubble passes up a chamber of water.

While gaps are an extreme though not uncommon instance, the overall distribution of orders also gives a Level 2 user a snapshot of the keenness of the market to buy and sell. Whereas a price may be stable, more buying order volume on the bid side

### F4) Auction Box



## F5) Tick Chart




Source: www.advfn.com

of the book than selling orders on the offer side should indicate that there is more buying interest than selling interest. This can often mean there is pent up demand, with buyers perhaps awaiting a trigger to mark up their interest and push the market higher. This helps highlight possible trading opportunities.

### SETS auctions

At the beginning and end of the day there are SETS auctions. This is a process to open and close the market, and gives participants an opportunity to enter into a five minute bidding process. This bidding can extend if the results are too extreme.

The idea of the auction is to provide an event to mark the opening and closing and enable parties to square their positions. This auction process can also start at anytime during the day if an order that is about to be executed would move a share price by 5%. The end of day auction is a particularly exciting trading moment as it represents a time when prices can move suddenly.

The basic auction has a five minute duration, in which parties can enter bid and offers as usual in the book, and special orders called Market Orders can also be placed. A market order is an order that will be filled at the end of the auction at the "uncrossing price" – the price set by the matching of all bid and offers and market orders that match. This uncrossing price moves as orders are entered and deleted, and after a random period of up to 30 seconds after the "five minute" auction, the uncrossing price is fixed and the auction settled.

### The auction opportunity

The end of day auction kicks off at 4.30pm (GMT) and uncrossing prices can fluctuate wildly as many parties watch the uncrossing price, and attempt to obtain an advantageous price or pick up an order at an aberration level. As the auction is for a limited period, it is a limited liquidity event. That is to say, there is no time for the market to accommodate unusual supply and demand conditions. It is therefore a good place to search for unusual price movements with an eye to pick up bargains. For the brave, it is an opportunity to bet against sharp moves on the belief that the morning will bring normality.

SETS is a replacement for the old market, where brokers and jobbers stalked the floor of the stock market. While it is now just a group of computers, the action of the people involved is no less complicated. As such, SETS is a complicated arena with many factors at work. Understanding Level 2 is no easy task and there always seems to be something new to watch. Level 2 is the heart of the market; and what goes on is constantly developing as parties hone their strategies to gain a trading edge. Vodafone, for example, will trade billions of pounds in a weeks on SETS, and as such, SETS is a huge pool of liquidity. It offers great potential for those who make the effort to learn the ins and outs.

TRADERS´

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