

Of the two types, concave and convex, the concave is the most useful in a predictive sense. This is because, since the curvature is getting less, it becomes obvious that the trend is running out of steam, and is therefore signalling quite clearly that the time is fast approaching when the investor should sell.

On the other hand, the convex curve can take the form either of the chicane, as shown in the GEC case, in which it has turned into a concave curve with its predictive advantages, or of an ever-increasing curvature which will come to a sudden end. In the latter case, the only judgement the investor can take is that the rate of climb has become unsustainable at some point in its development, and therefore the time has come to sell. The point at which it is judged to be unsustainable is therefore a very subjective one. An example of this is shown in the Tesco share price in Figure 8.6. The curved trend line is highly valid, since there are some eight troughs lying on it between September 1994 and August 1995. By the latter date the curve is rising almost vertically, and is obviously at a level which cannot be sustained. The price fell from a peak of 337.5p to 310p in the course of a few days, i.e. a loss of nearly 10%.

The best practice for an investor holding such a share when the curve becomes nearly vertical is to decide to get out on any fall, i.e. ignore the

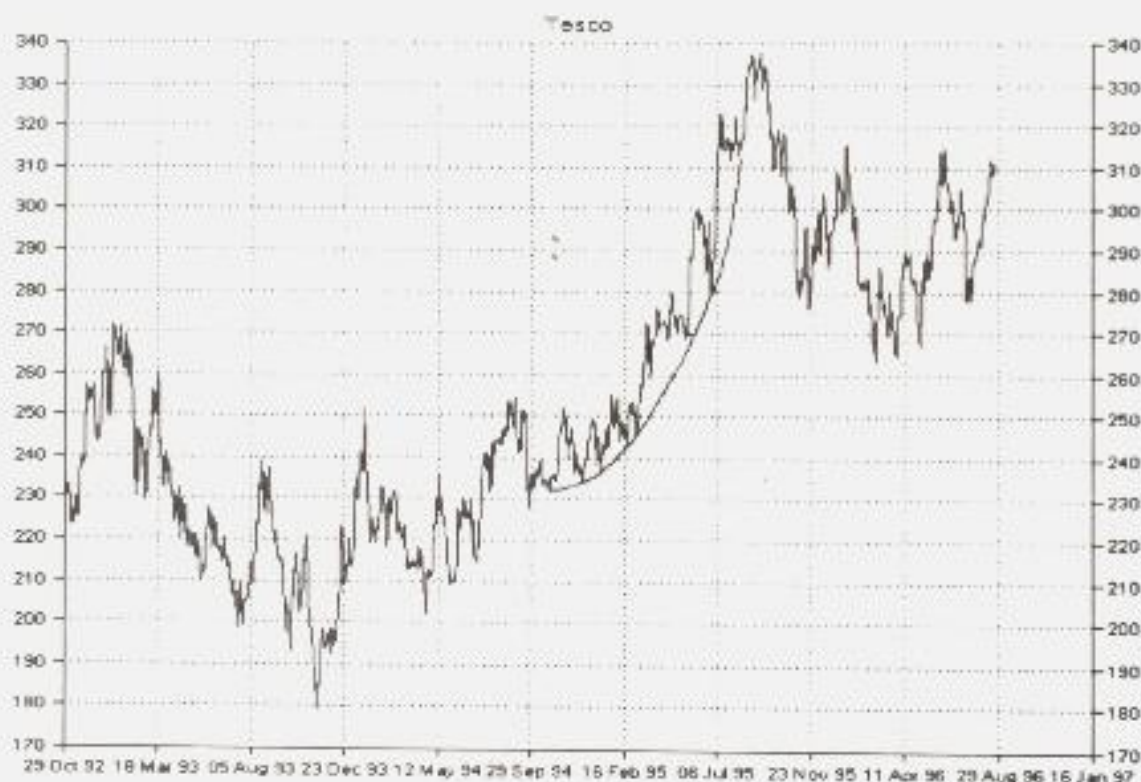


Figure 8.6 The Tesco share price. Here the curved uptrend is convex with respect to the future. It has reached an unsustainable rate of increase from which the price falls rapidly. There are eight troughs lying on the line

stop loss method, since the price more often than not will fall in a similar way to that of Tesco. By this method, the investor would have got out at about 327p, only about 3% down from the peak, rather than having to accept a loss of around 10%.

Note the all-important difference between a curved uptrend and a channel. It is not possible to draw a curve through the peaks in these examples such that the gap between them remains constant, since they are at irregular price levels. For a channelled uptrend, this will be possible.

Straight Downtrend

As mentioned earlier in this book, downtrend lines are constructed by drawing a straight line through three or more peaks. The chart of Safeway shown in Figure 8.7 is a good example of a downtrend changing into a curved uptrend. The downtrend lasted for most of 1988, and the trendline can be seen to have begun with the peak of 210p on 18th March 1988. The peaks between this point and the peak in July at 194p would have resulted in a trendline being drawn with a greater downwards slope than that shown in the figure, but the peak in July would force a slight adjustment. The price fell away again and it was another three months before the same trendline was picked up again. The next peak on 29th October at 180p was

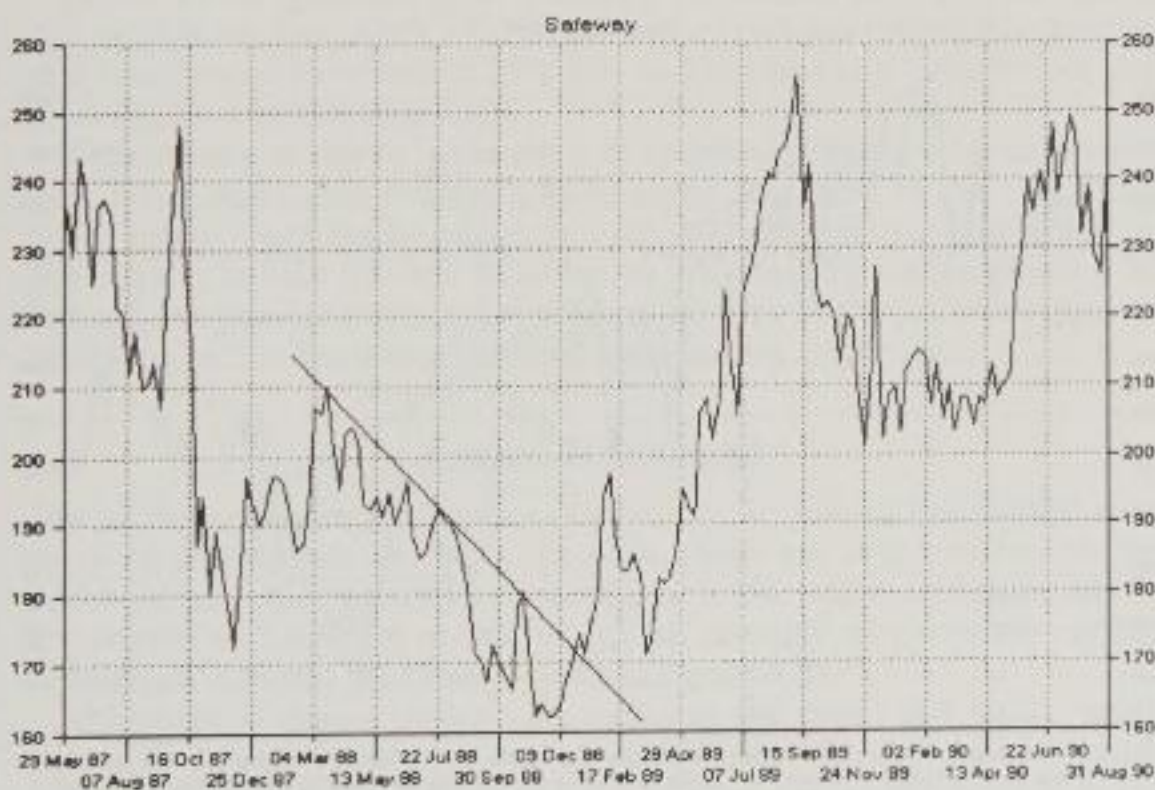


Figure 8.7 The Safeway share price. A good example of a medium term downtrend that lasted just under a year

the fifth point lying on or very close to the line, giving a well-defined trend. The investor would now be looking for a rise of 5% above this line. The price fell away considerably from this peak to a low point of 162p on 11th November 1988 and then rose sharply to a level of 179p to penetrate the line. This represents just over 5% above the trendline itself, and in view of the strength of the line with four peaks on it and one peak close to it, can be considered to be an unambiguous signal that the downtrend has been broken. The correctness of this view is supported by the fact that the price rose rapidly to 197.5p on 3rd February. The low point of 11th November was a major low, being the lowest point reached in the last five years.

By March 1989 the price retreated to the first of a series of troughs which formed a new major uptrend which took the price up to an all-time high in August 1989.

Note the all-important difference between a downtrend and a downchannel. It is not possible to draw a straight line through the troughs, since they are at irregular price levels. For a downchannel, as will be seen shortly, it is possible to draw another line through the troughs which is parallel to the line through the peaks.

Some downtrends last a very long time, as can be seen from the example of George Wimpey, shown in Figure 8.8. The trend can be considered to have started with the peak on 17th February 1989, with the price at 307p.



Figure 8.8 A first-class example of a long term downtrend is shown by George Wimpey. The trend lasted over five years, from February 1989 until April 1993

The next peak, just a few weeks later, was at 305p. The fact that this peak was lower than the previous one is an indication that the previous uptrend may have changed direction. The next peak in May 1989 was still lower, at 295p, and at this point it was possible to draw a trendline sloping downwards.

The trendline would have to be adjusted slightly when the next peak was formed at 282p on 8th September 1989, but the previous peaks would have been well within the tolerance permissible.

It was a further nine months before the price rose to this line again with the peak at 253p on 22nd June 1990. Following a further attempt at crossing the line in March 1991, the price spent a long time below the line before a return in May 1992. As will be discussed in the next chapter, this peak was composed of a number of extremely short term small peaks, giving the appearance of a flag. This usually means a further rise, but in this case the trendline obviously carried more weight in deciding the future price movement than the flag, since the price then retreated down to a low of 74p, the lowest price for more than a decade.

The rise from this level took the price up to the trendline once more, and reached it on 19th March 1993 at 155p, before bouncing down again. Thus the trendline is still seen to have had an influence even though the end of the actual downtrend can be considered to have been reached with the low of 74p.

A few weeks later, the price decisively penetrated the trendline with a rise to 182p on 23rd April 1993. Note that an investor selling the share at that time would have seen a 25% rise to 228p by early 1994, before the price fell back to the 160p level.

The downtrend shown in the chart of Hillsdown in Figure 8.9 lasted just over three years. An unusual feature is the sharpness of the first three peaks which touch the trendline. In each case the price jumped by about 10p in a day to take it to the trendline, as if the trendline were exerting its influence to provide a final spurt to the price even as the price was already hesitating before beginning its downward journey once more.

Curved Downtrend

Just as there are curved versions of uptrends, so can we find curved versions of downtrends. As with uptrends, there are two versions of the curve—those which present a concave face to the future, and those which are convex with respect to the future. An example of a concave curved downtrend is shown for Coats Viyella in Figure 8.10.

The curve is drawn through six peaks in the price, and unlike most curves is almost exactly an arc of a circle, i.e. its curvature remains constant throughout its length. At the time of writing the price is at its furthest excursion from the trend, being some 45p below the point at which the curved trend is about to turn up. Thus it is possible that the



Figure 8.9 The downtrend in the Hilledown share price has needlepoint peaks touching it

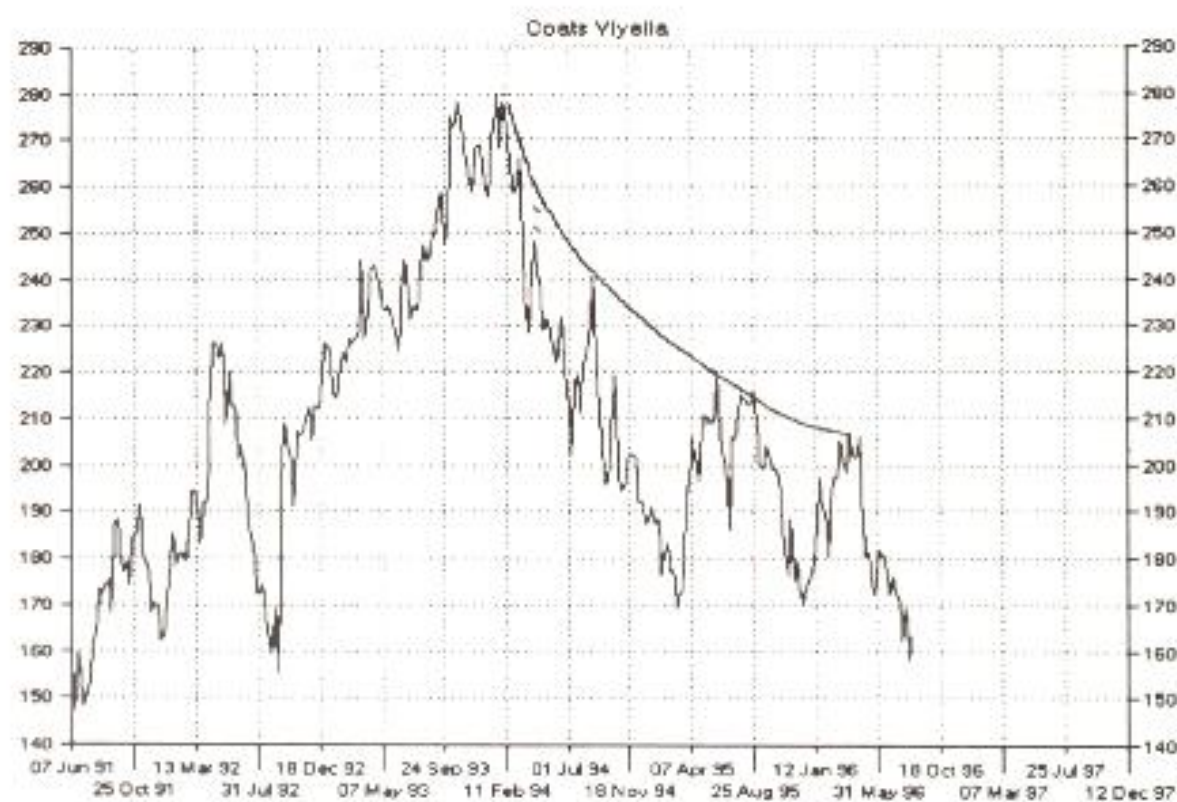


Figure 8.10 A curved downtrend lasting over two years can be seen in the Coats Viyella share price. The curve is concave with respect to the future

curve represents the first half of a rounded bottom where the short term fluctuations are much greater than in a traditional rounded bottom as discussed in the last chapter. In this particular example, the value of the trend lies in its projection following the peak in August 1995. Because of the constant radius of the curve, its projection is quite easy to draw. Thus the arrival of the price in March and April 1996 at the projection would have sounded a warning bell to the investor holding the share that the time had come to sell. The resulting 45p fall shows how valid the warning was.

Convex curved downtrends are not quite as common, but a short term example is shown in Figure 8.11 for British Gas. The first peak on the downtrend is at 276p on 5th September 1995. A curve could not be drawn until the third peak at 265.5p on 4th October. At this point the price fell away sharply to 245p in a matter of days, but bounced back again to meet the extrapolated curve on 18th October at 260.5p. As with the previous example, the curvature of the curve remains constant, i.e. it maintains a constant radius from its centre, so that extrapolation is easy. As before, the price reacted markedly, falling from this point to below 230p. It can be seen that each reaction from the curve is progressively greater.

The price rose again from this low point to reach the curve for the fifth time at a price of 245.5p on 14th November. Although the price fell again, on this occasion the reaction was slight, and the price came back to a

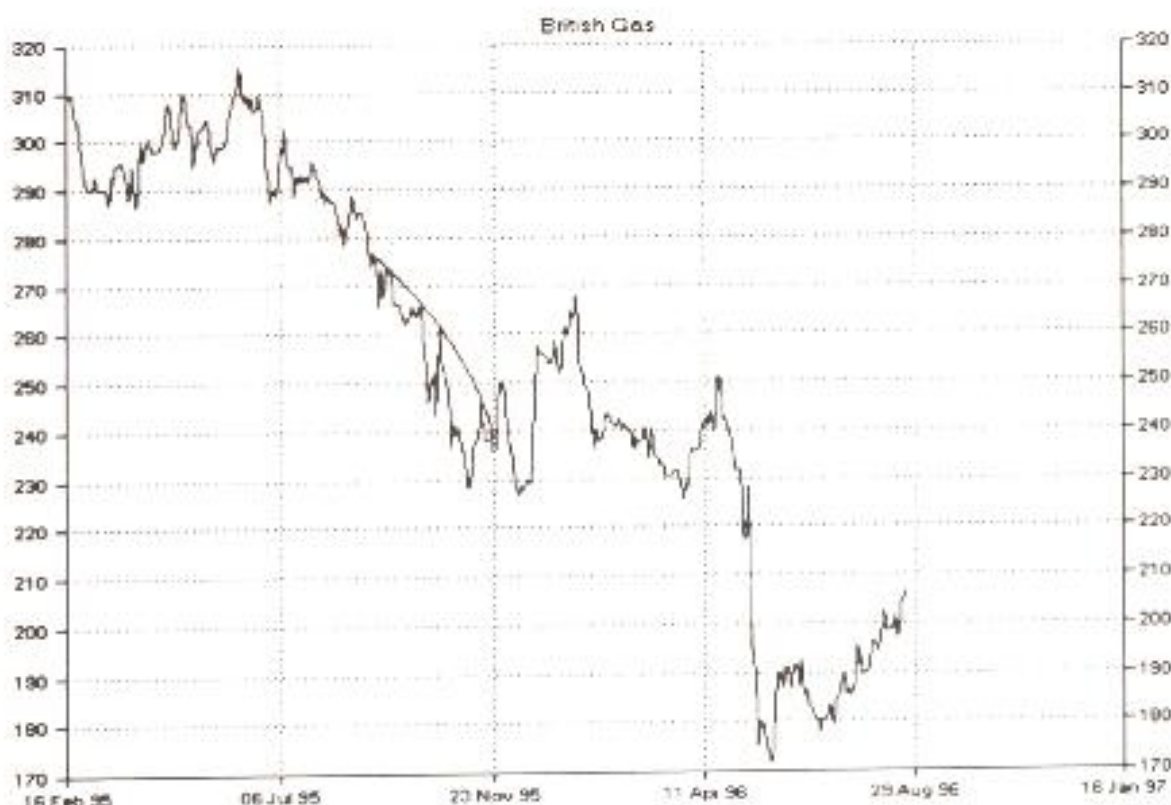


Figure 8.11 A short term curved downtrend in British Gas. This curve is convex with respect to the future

minor peak of 238.5p on 21st November. This peak is again on the extrapolated curve, but the reaction this time was so minor that the expectation was that the downtrend would be violated quite soon.

At this point the extrapolated curve is falling nearly vertically, so that it must be at an end. The price rapidly rose to 250p before falling once more, but from this fall a rapid rise occurred to 257.5p on 21st December 1995. Thus the investor correctly identifying the end of the trend from the vertical fall of the curve and the progressively smaller reactions from the curve would have made a useful profit in a very short time.

CHANNELLED TRENDS

Channelled trends are uptrends and downtrends in which the excursions away from the trendline are limited by another line which is at a constant vertical distance from the trendline. In the case of an uptrend, this second line will be above it, whereas with downtrends, it will be below it. These two lines can be considered to be boundaries, within which the price is contained for the duration of their existence, whereas in the uptrends and downtrends discussed earlier, the excursions were not limited, so that the trends appeared to be somewhat irregular. As with simple trends, channelled trends can be straight or curved.

Straight Upchannel

Scottish and Newcastle provides an excellent example (Figure 8.12) of a straight upchannel. As shown in the figure, a straight trendline can be drawn so as to touch exactly the troughs that occurred in March 1995, November 1995, December 1995 and March 1996. Although in this example the troughs fall exactly on a straight line, in practice a small amount of tolerance can be accepted, so that the price may bounce up just before a trendline is reached, or pass a small distance below the line before the price rises once again.

The upper boundary which limits movement away from the trendline is at a vertical distance of about 60p above it. It passes through the tips of the group of peaks between July 1995 and September 1995, but is not revisited until the peak in April 1996. Thus the channel lasted about a year.

On 21st June 1996, the lower boundary was at a level of 670p. The price fell below this before recovering slightly. This time the recovery took the price up to what was previously the lower boundary before reacting downwards again. Thus, what was the lower boundary has now become an upper boundary, preventing the price moving higher.

The price fell to below 640p before climbing again, but the latest peak is at a similar level to the previous one at 670p. Thus it has to be considered that the uptrend is now at an end.



Figure 8.12 A straight upchannel in the Scottish and Newcastle Breweries share price

It is important that unlike the case with simple uptrends, investors do not use the fall of 5% below the lower boundary as a selling signal. Many channels are of large depth, so that the fall when a share price peaks at the upper boundary and drops to the lower boundary can be large. The only way in which penetration of the lower boundary of a channelled uptrend should be used is as an indication that the price is now headed on a downtrend, of indeterminate length. As will be seen in the chapter on Channel Analysis, a close study of the behaviour of price movement within channels can be extremely rewarding in terms of much sharper timing of buying and selling points.

Note that on the visits to the lower boundary, the price rebounded about 10% each time in the space of just a few days, giving a very respectable short term profit for the investor who bought at those points.

In the case of Charter Consolidated (Figure 8.13), the straight upchannel has lasted for nearly three years, and at the time of writing is not yet at an end. The lower boundary has five troughs lying on it, starting with two fairly close together in mid-1992. It was July 1994 before the next trough was formed on the lower boundary, but meanwhile there had been two peaks formed, in January 1993 and January 1994. The straight line joining these two peaks would be parallel to an extension of the line joining the two troughs in 1992, and therefore it can be considered by the time of this second peak that we probably have a channelled uptrend developing. The

fact that the trough in 1994 falls on the extension of the lower line is confirmation of this fact. Thus the rebound of this price from the trough in July 1994 is a signal to buy. The extension of the upper boundary gives an idea of the extent of the price rise which should ensue. Since the vertical depth of the channel is now about 180p, we would have to take this amount and add to it the amount by which the channel has risen from the trough by the time the price reaches the upper boundary. However, since this is an indeterminate amount, our best guess is a rise of at least 180p. As can be seen from the chart, the price rose from this trough of 663p on 27th June 1994 to 835p on 29th August 1994, a rise of 172p. The investor of course would not have got into the share at the trough of 663p, but a few days later at about 670p once the trough had been formed. The investor would have been pleased with the subsequent gain of nearly 25%.

Curved Upchannel

Curved channelled trends are equally as common as straight ones, and the chart of Ladbroke in Figure 8.14 shows such a curved uptrend running over most of 1988. A lower boundary can be drawn through five troughs, starting with the trough immediately after the fall in October 1987 and ending with the trough in December 1988. A curved upper boundary can

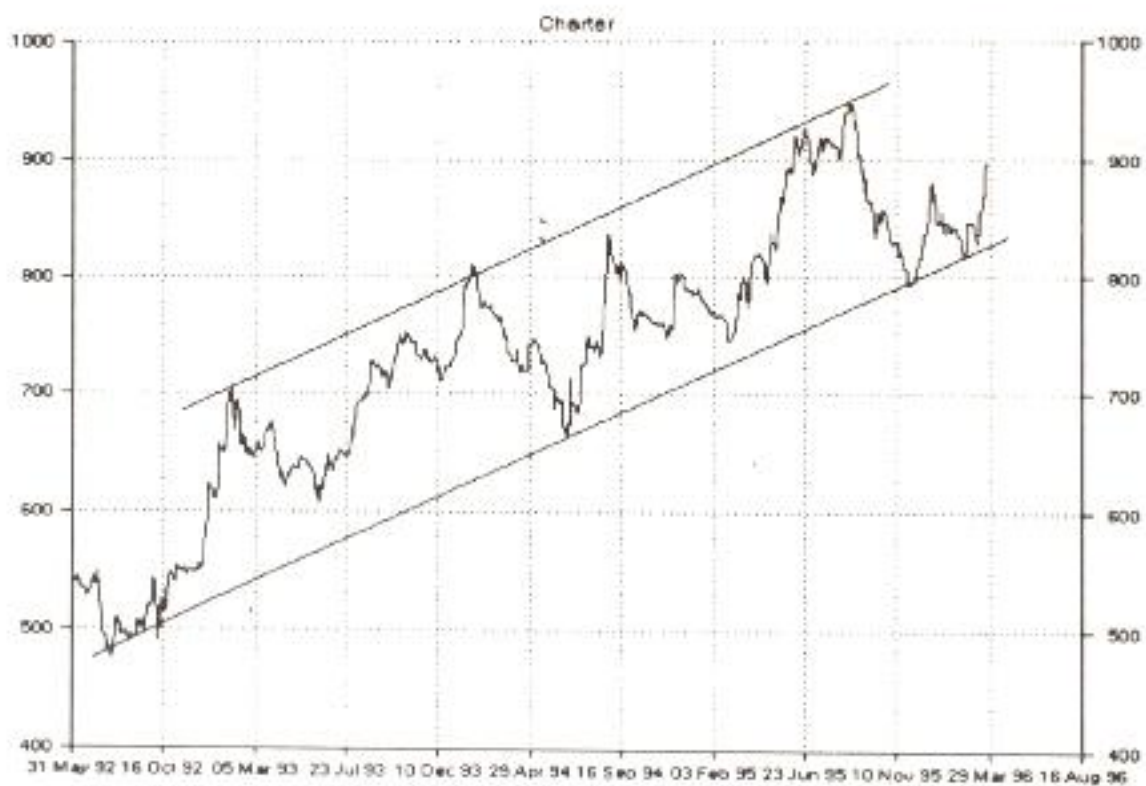


Figure 8.13 The Charter Consolidated share price shows a long term straight upchannel which has lasted for nearly four years

also be drawn to cover the same time period and passing through the peaks in March 1988, July 1988 and September 1988. By the end of 1988 the curve was quite obviously flattening out, and therefore the investor would be expecting the end of the uptrend to be signalled by a breakout through the lower boundary. Perversely the breakout was through the upper boundary in January 1989. What this means is that the short term uptrend was replaced by a much stronger longer term uptrend, which took the share price up much more rapidly. The price eventually peaked out at around 340p before a series of short term cycles came into prominence which were superimposed on the stronger uptrend which was now topping out. The channel presents a concave face to the future.

An example of a channel with a convex face to the future can be seen in Figure 8.15. Here the GKN share price is contained within a channel which is increasing in slope, and obviously building to a rate of increase that cannot be sustained. Although the channel appears to be getting narrower, this is an illusion, since the vertical depth is constant, a feature which is mandatory for all curved channels.

A closer inspection shows that the price penetrated through the lower boundary once it bounced back for the second time from the 1000p resistance level, so that the rising channel must now be considered to be at an end.

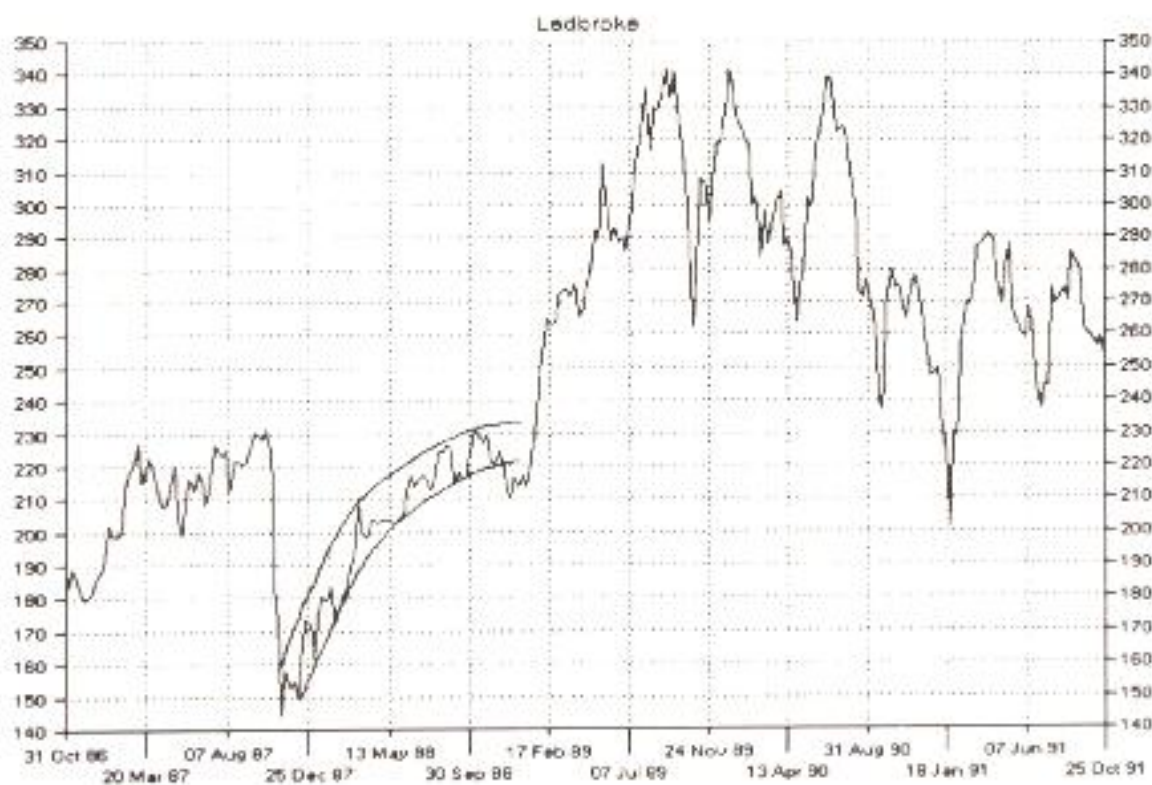


Figure 8.14 A curved upchannel can be seen over most of 1988 in the Ladbroke share price



Figure 8.15 The GKN price is contained in a channel which is convex with respect to the future. The channel curvature is such that the upward trend is unsustainable

An investor who got into the share at the beginning of the upwards channel movement would have seen a rise in price from about 550p to 1000p in just over a year, a rise of 81%.

Straight Downchannel

A well-defined short term channelled downtrend is shown in Figure 8.16 for BTR. The upper boundary has five peaks either on it or within a penny of it. The lower boundary has three troughs lying on it, but it is exactly parallel to the upper boundary of the channel. The usual breakout from a descending channelled trend is of course on the upper side, i.e. the downtrend turns into an uptrend. In this case, however, the price penetrated the lower boundary to fall away drastically from 312p to 238p in a matter of a month.

Although naturally a stop loss would prevent such an excessive loss, the penetration of a channel on either boundary is a warning that the trend is changing direction.

A much longer channelled downtrend is exhibited by Glynwed (Figure 8.17). The trend started with the market crash in October 1987, prior to which the share price reached a peak of 384p. The trough into which the price then fell was at 258p, 126p lower. Since this fall was almost vertical, it gives us a channel depth of just under 126p which was only broken in early

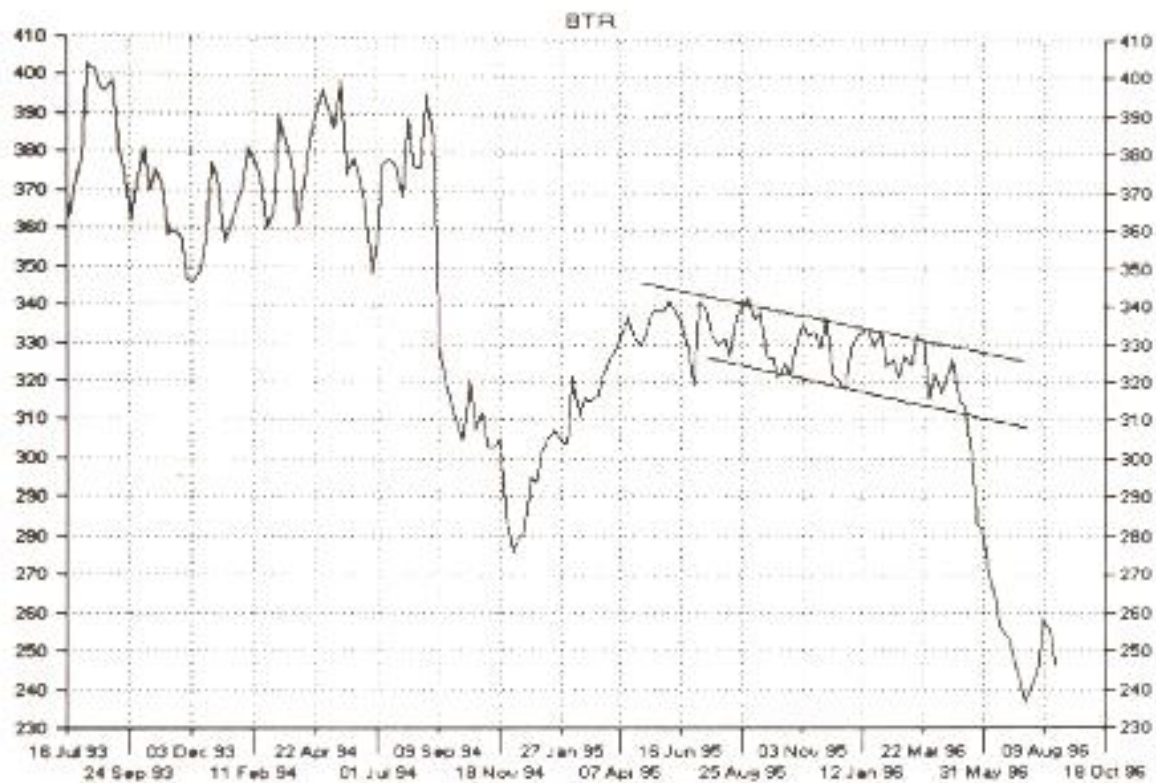


Figure 8.16 A short term channelled downtrend in the BTR share price



Figure 8.17 A long term channelled downtrend in the Glynwed share price. The trend lasted nearly five years

1992. It should be noted that the previous history of Glynwed was one of rapid rises and falls of the order of 100p to 120p, so that the fall occasioned by the crash was not unusual as far as this share was concerned. The movement subsequent to the crash was equally erratic, so that the price swung repeatedly between the channel boundaries.

The trend was broken in April 1992 when the price rose above 218p to 280p, this peak being well above the upper boundary. This move was not decisive, since the price immediately fell back into the channel again, but this time did no more than meet the mid-point at 188p on 7th August before rising again. This time the rise was sustained and took the price back to the levels reached just prior to the 1987 crash.

The investor taking advantage of the share pushing up through the upper boundary would still have made a small profit from the first, temporary penetration, with a rise from 247p to 280p, but obviously the real profit was made on the second occasion with a rise from 241p (the boundary position) to 388p.

Curved Downchannel

Enterprise Oil, shown in Figure 8.18, is a good example of a curved down-trend. In this case the curve is concave with respect to the future. The

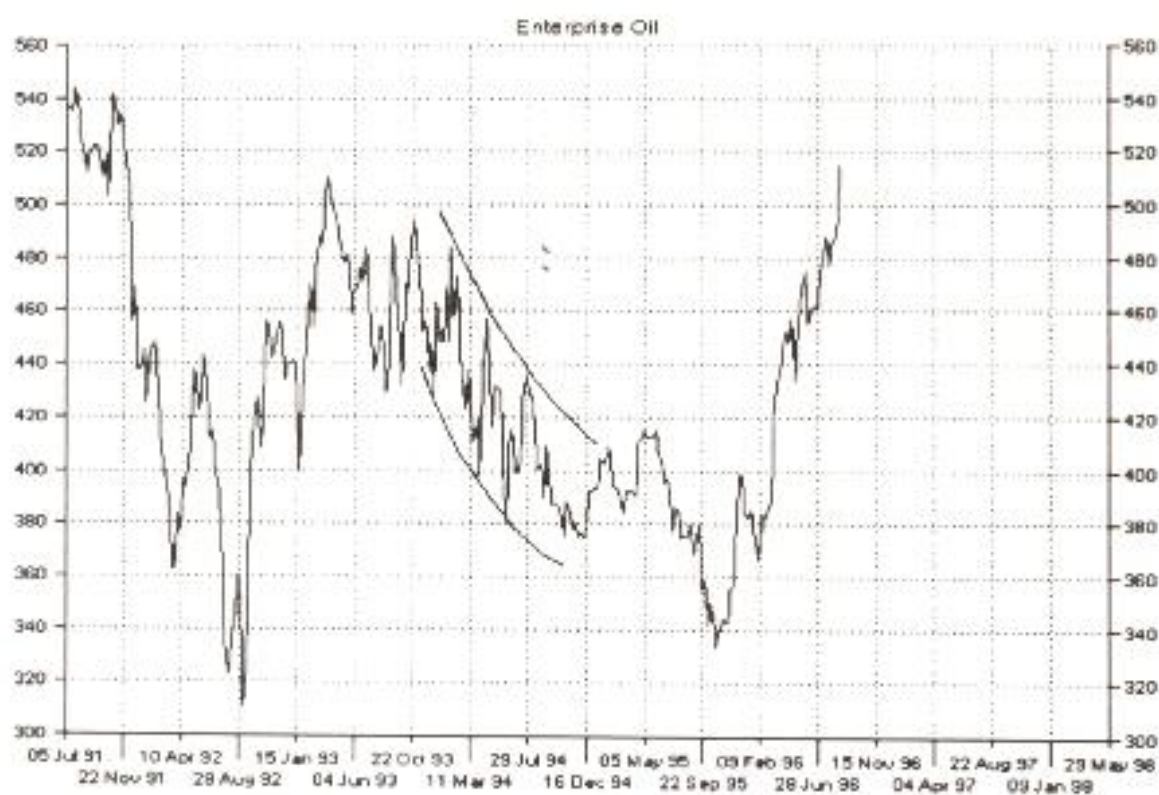


Figure 8.18 The Enterprise Oil share price is contained in a channel which is concave with respect to the future. The channel curvature is such that the downward trend appears to be approaching its end

channel depth is about 65p, and the short term oscillations within the channel almost go from boundary to boundary within a few days, rises and falls of about 60p being the norm.

By the end of 1994, the channel curvature is rapidly flattening out, so that the expectation is that the long term price trend should change direction soon. In May 1995, the price broke up through the upper boundary, but this was a false signal, since the price then fell down through the upper boundary and then down through the lower boundary. The downward trend finally changed direction in November 1995 when the price rose from the trough of 337p. The share made substantial progress over the next nine months.

Coats Viyella, shown in Figure 8.19, is interesting because of the existence of two curved downchannels, a short term one and a medium term one. These are of opposite curvature. The first of these, the short term concave channel, can be seen from late 1987 to mid-1988. It is very well defined, having four troughs lying on the lower boundary, and five peaks lying on the upper boundary. This is one of those cases where it is essential to wait for a break through a boundary before taking any investment decision. Quite obviously, the channel is a curve that is flattening out, and so there is every indication that the price should start to rise again. Those



Figure 8.19 The Coats Viyella price contains two curved downchannels of opposite curvature. The first, following the market crash of 1987, is concave while the second is convex

investors who by their nature have a tendency to jump the gun would come to grief, because they would be totally convinced that once the price had reached the bottom of the channel in August 1988 the only way it could go would be upwards. As will be seen from the chapter on channel analysis, such premature action is never to be taken, and confirmation that a channel has passed its bottom point must be seen before action is taken. In the case of Coats Viyella, the investor would see that there is no bounce back from the bottom of the channel, and the price fell down through it. The conclusion, therefore, is that the gradually straightening downtrend has been replaced by a much more severe downtrend, and no investment would have been made at that point.

Once the share price had climbed back slightly from the trough in December 1988, the share entered a new channelled trend which again was curving downwards, but presenting a convex shape to the future. This channel has some four peaks touching the upper boundary, two of which occurred very close together. The lower boundary has three troughs lying on it. With the price at the upper boundary the investor would be looking quite closely for signs of penetration upwards. The probability is against this because the downtrend is in an early stage of its development, having increased its curvature only slightly over the period of the trend.

9

Hesitation Patterns

The patterns which will be discussed here are often gathered together under the term 'continuation patterns', but this is a misnomer, since many of the patterns are in an ambiguous state where they can continue the previous trend or reverse it. A much better term is that used for the title of this chapter, 'hesitation patterns', since the term is then self-explanatory. The share price is in a phase in which it is making up its mind about its future direction, and the future direction is not known until a breakout from the pattern occurs. Except for the special case of flags, these patterns can be of medium or short term. Flag patterns are periods of hesitation which last for up to a few weeks, usually taken to be about three weeks maximum, and are therefore special cases of these more general hesitation patterns.

SUPPORT/RESISTANCE LINES

Support lines are horizontal lines from which the share price repeatedly bounces back upwards. Resistance lines are lines from which the share price repeatedly bounces back downwards. The reason for bracketing these two together in this heading is that it very often happens that once a resistance line is violated, it then becomes a support line, and once a support line is violated it then becomes a resistance line.

While two or three troughs can fall to exactly the same value and two or three peaks rise to the same value, giving an exactly horizontal support or resistance line, it is unusual for many more troughs or peaks to fall exactly on the line. For these extended cases a small amount of tolerance is to be expected, but this should be no more than 2-3% of the level of the line in question. This is exemplified by the share price of Land Securities (Figure 9.1) through most of 1988 and 1989. There is obviously a line of resistance at about 600p above which the share price has failed to move despite numerous attempts during this period of time. The first peak at the start of this resistance was on 20th May 1988 at 596p. The price fell back slightly

before having another go at this level a few weeks later, this time advancing slightly to 598p on 15th June. It was another five months before a third attempt was made on this level, and this time the price broke through to 609p on 23rd November. Since this is only 2% above the first of these attempts, it cannot be considered that the line has been broken, and this was confirmed by the fact that the price then fell back once again. A new attempt was made in February 1989 which took the price up to a peak of 600p, but again this failed to make a decisive breakthrough. Several further efforts in March and May took the price to 593p and 596p before the price rose to 609p on 12th April 1989. By this time the view would have been formed that the real resistance line was at 600p, and that the very small penetrations were simply a random fluctuation about this line. Thus a rise to 609p represents a rise of only 1.5% through this line, and cannot be considered to be significant. Sure enough, the price fell back again before reaching the 600p level again on 17th August. Finally the price struggled to 605p on 5th September 1989 before giving up and falling away rapidly to below 500p, and then further in the next two years to 358p in September 1992.

Thus the history of the Land Securities share price was one of numerous attempts to cross the 600p level decisively and of constant failure to do this. Since a resistance line may be considered to be a horizontal trendline, we have to adopt the same criterion for penetration as we did with

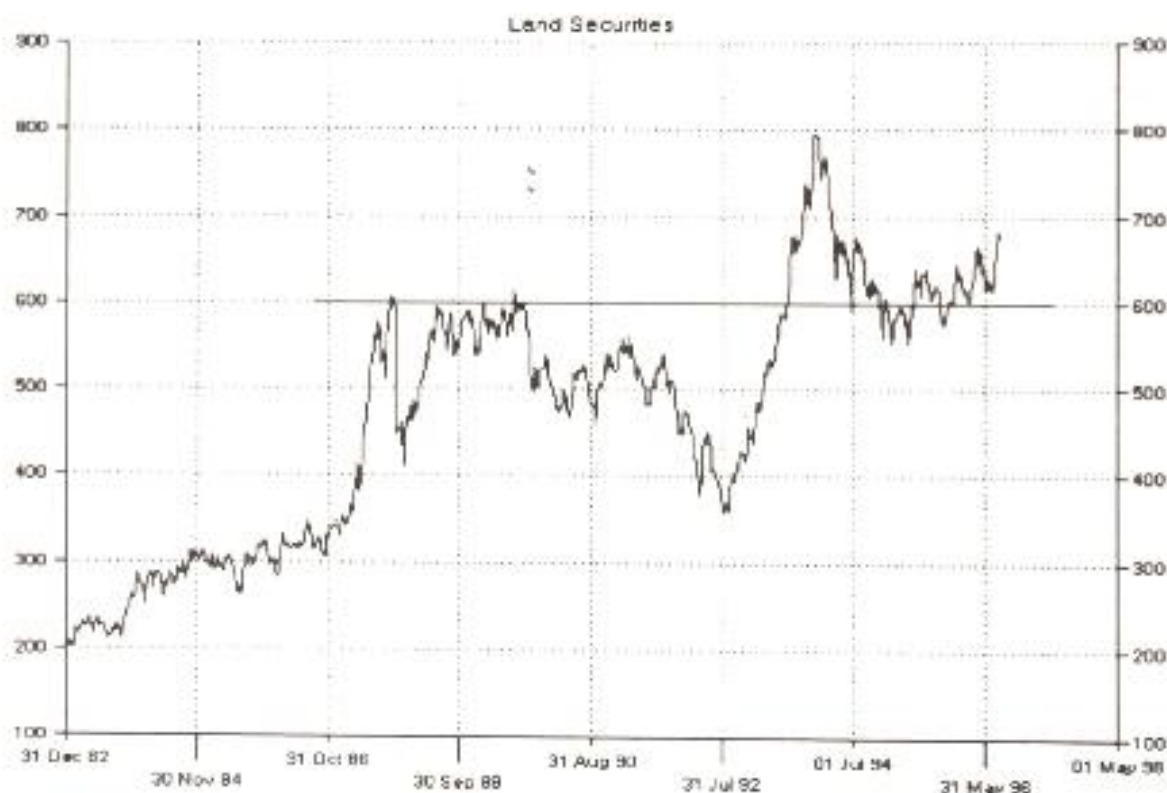


Figure 9.1 A resistance line at 600p in Land Securities

trendlines: the price has to penetrate the resistance line by 5% before we can consider that the resistance has been broken.

It was nearly four years before the Land Securities price got back to the level of the resistance line, and the price crossed it decisively on this occasion, rising from 608p on 23rd July 1993 to a peak of just under 800p. In falling back from this point, the 600p level became a temporary support line, with the price bouncing upwards from it. It then became a temporary resistance line, before becoming a support line once more. Thus the 600p level in Land Securities is an important interface between low price levels and high price levels.

An example where there were fewer attempts to cross a resistance line, but where the line still stayed valid for almost two years, can be seen in Reed International (Figure 9.2). Nearly one year after the October 1987 crash the price had recovered about half of the lost ground, rising to a peak of 468p on 1st August 1988. The price then fell back before rising again to a peak of 460p on 8th February 1989. Again the share price failed to make any further progress and fell to its low for the year in December. Following a fall back in the beginning of 1989, the price then recovered gradually before peaking out at 467p on 24th August. We can now see that since this is within a penny of the peak back in August 1988 we can construct a resistance line at this level, even though 467p or 468p seems to be an odd level for resistance. The line was validated by another attempt

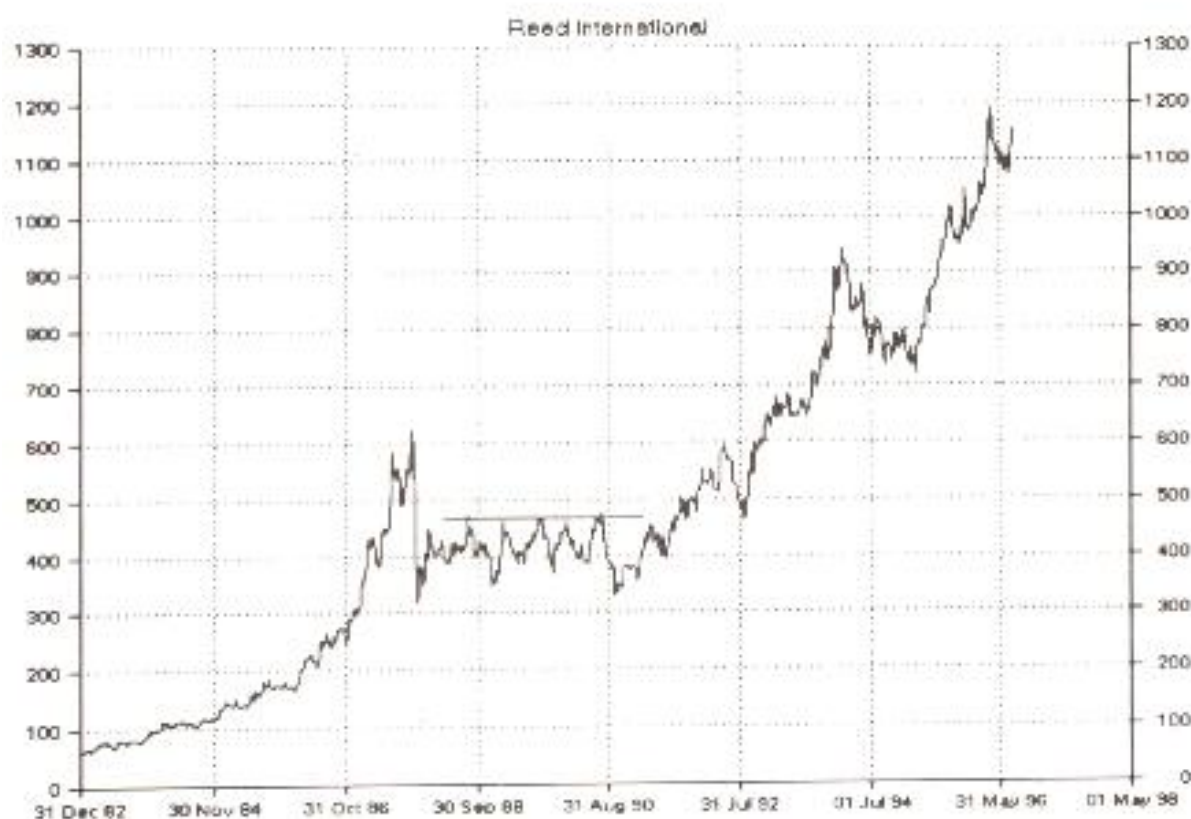


Figure 9.2 A resistance line at 467p in Reed International

at this level on 28th June 1990, when the price peaked at 467p again. Although the price broke through this line to 472p a few weeks later on 19th July, this is only 1% above the line, and nothing like the 5% breakthrough that is required to substantiate a failure of the resistance. The price rose back to the resistance line again in August 1991, before crossing it and the 500p line in September 1991. Although the rise from that point to 600p was of only short duration, the price eventually left this congested area for the last time in August 1992 with the low at 460p. Since then the share has risen to over twice this level.

The same philosophy of allowing a little tolerance either side of a support or resistance line can be seen in the case of Blue Circle Industries (Figure 9.3). Following a sharp recovery from the crash of 1987, the share price then fell back to 202p on 12th February 1988 before apparently resuming its upwards move. It was three months before the price fell back again, dropping to 203p on 29th April and staying at that general level until the price inched down to 201p on 27th May 1988. Another three months later the price was back down to 204p on 2nd September, but then made some progress before running out of steam again and moving back down to 203p on 23rd December. This time the price moved upwards consistently, and by the following May was at a peak of 292p. The price then spent the next five months falling back to the resistance level, reaching 196p on 27th October 1989. A rally took the price up again before it dropped back once more. This time the price fell very slightly through the previously established resistance line, reaching 202p on 4th May before recovering again. Taking all of the trough prices into account, the resistance line is best drawn at 205p, so as to put all of the troughs into the position of being randomly and, importantly, closely scattered about it. The 5% breakthrough line can therefore be drawn at 195p. The price fell below this line to 189p on 17th July 1992. Once this support was left behind, a substantial fall occurred, with the price bottoming out in October 1992 at 131p. The rise from this point was rapid, and the support line did not turn out to be a resistance line, since the price went rapidly through it. The next 18 months saw a rise to a sharp peak at 382.5p in January 1994.

So far, we have been looking at quite long term support and resistance lines, and the majority fall into this category. Sometimes, however, support or resistance can last for just a few weeks. An example is shown in Figure 9.4 for Cable & Wireless. The resistance line shown at 462p lasted for just two months in 1996. The line was touched by the peak on 4th January 1996, and again on 22nd January. The price then fell to a trough of 432.5 on 29th January before it rose slightly above the line at 463p. The last touch with the line was on 21st February. A few weeks later the price rose through the resistance line to 477p on 11th March, before making a large jump to 538p.

It frequently happens that a line can be both a resistance line and a support line, changing from one to the other once the price penetrates

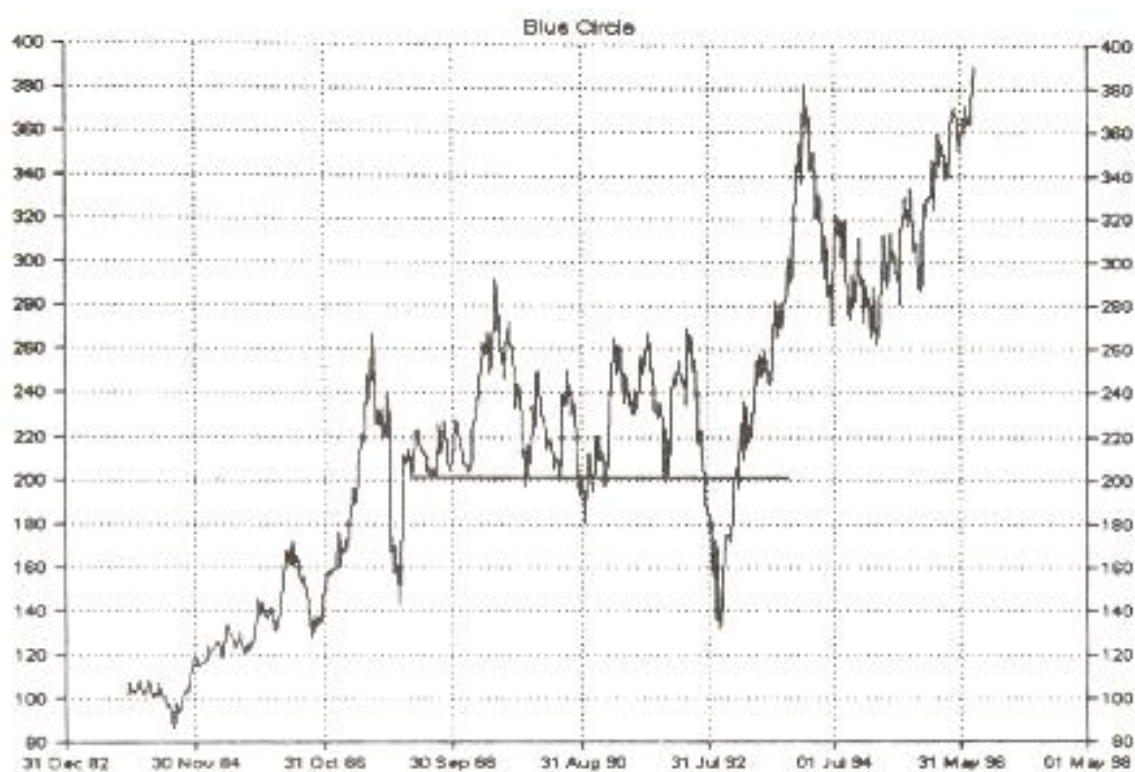


Figure 9.3 More tolerance is needed to draw the Blue Circle resistance line

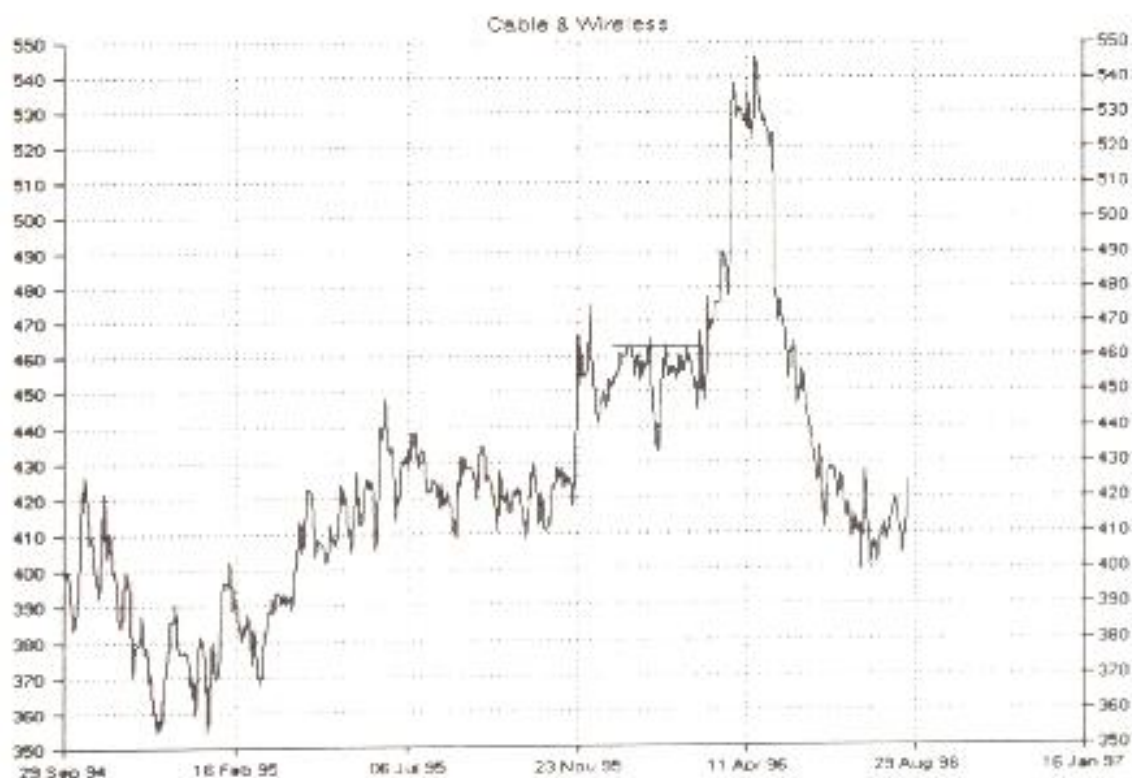


Figure 9.4 A very short term resistance line is shown in this chart of Cable & Wireless

through. A good example of this is Allied Domecq, shown in Figure 9.5. The line in question is one that can be drawn at the level of 550p. This particular section of the share price features multiple short term price movements that take the price up and down in rapid jumps or falls of over 100p. The first trough on or near the resistance line was in September 1992 at 550p, the next in April 1993 at 551p, following which the price fell temporarily below the line to a trough at 523p in May 1993. The price then recovered to the territory above the line, forming more troughs on the line in November 1993, April 1994 and July 1994. The price then fell rapidly to 498p before rising to the line, which now became a resistance level, with peaks in July 1995, August 1995 and January 1996. Having failed to penetrate the resistance line, the price fell by over 100p in the course of the next few months, and at the time of writing is still around the 450p mark.

From these few examples, it can be seen that support and resistance lines can be valid for anything from a few weeks to many years. In general, once the price has crossed the line, there is usually a rapid movement away from the line, with large falls from a support line, and large rises from a resistance line. More often than not, the line then changes character from being a support line to a resistance line and vice versa.

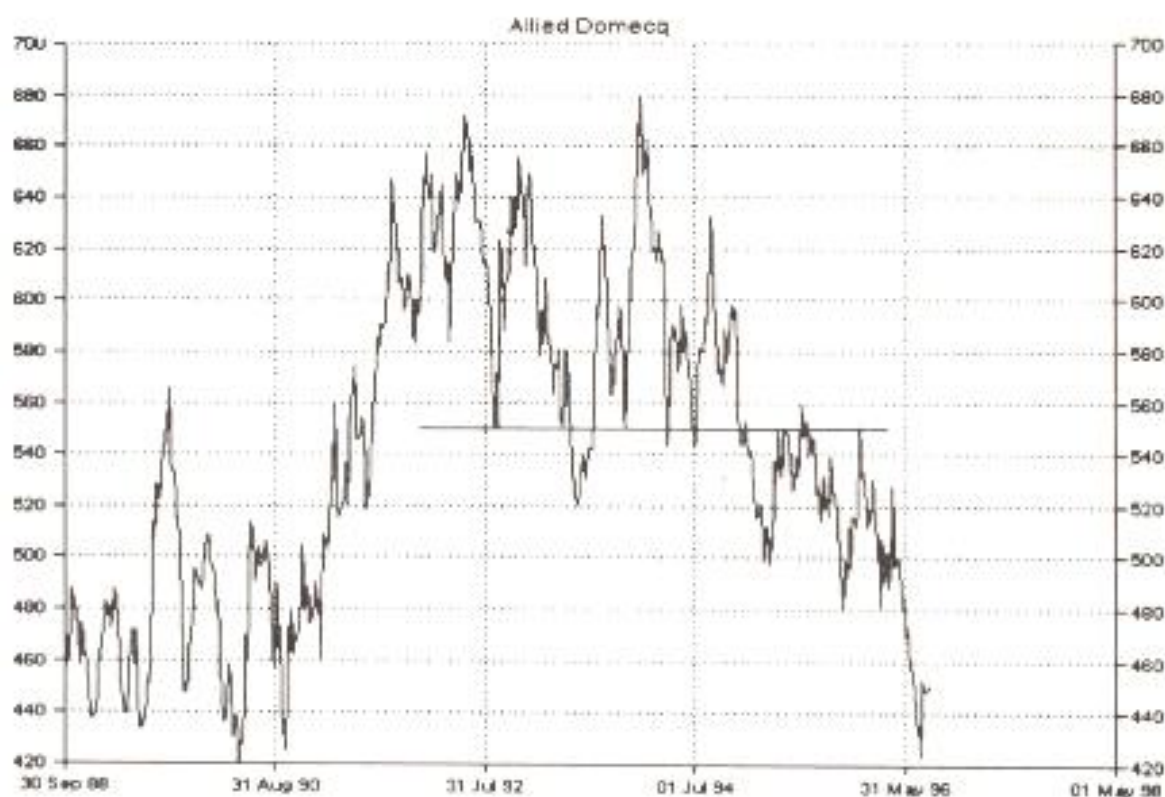


Figure 9.5 A resistance line can become a support line as shown by the line at 552p in Allied Domecq

RECTANGLES

A rectangle is an area of congestion of the share price that is limited by both a support line and a resistance line, so that the price spends its time oscillating between the two levels. Since the two lines are parallel to each other, the formation is known as a rectangle. As with normal support and resistance lines, a certain tolerance should be allowed for crossing of these lines, but a 5% crossing is taken to be significant for a continued move in the direction of the penetration.

A medium term rectangle can be seen in Figure 9.6 for Glaxo Holdings. The rectangle can be said to have started in June 1989 with the price at a trough of 337p. The price then spent the next year between the extremes of 337p and 405p, and only moved outside this range at the end of 1990. As with resistance lines, once this had been crossed, the price rose dramatically to over 900p, i.e. more than double the level of the resistance line in less than a year.

It is not possible to predict whether the price will break upwards or downwards from the congested area of a rectangle formation. It will only be possible to say at the time that it happens that a new trend is in progress. As with the rise above the resistance line in the case of Glaxo, a fall below the support line would be expected to produce a considerable price fall.

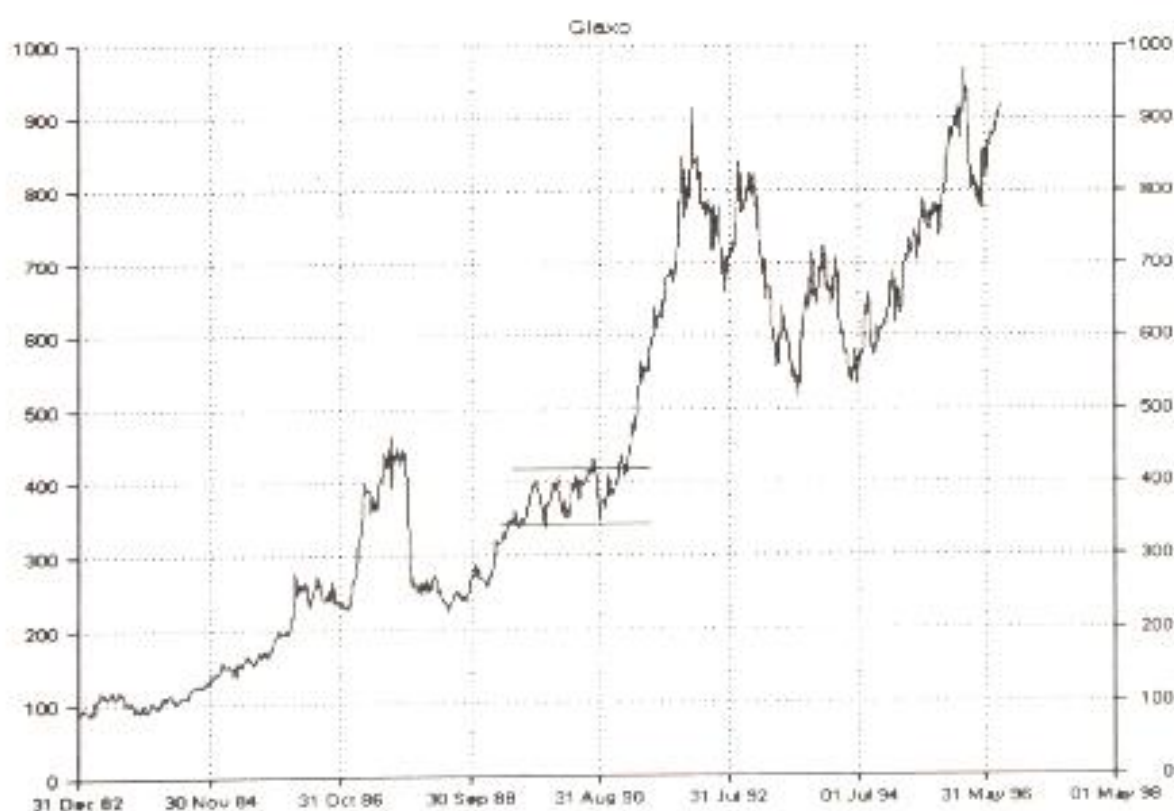


Figure 9.6 An example of a rectangle in the Glaxo share price

TRIANGLES

There are many forms of triangles, the main types of which are discussed in this section. Since these formations are so common, it is not necessary to provide more than one example of each type. The crucial aspect of triangles is that a break-out through a side is significant, implying further movement in the same direction, while for triangles other than expanders, there is no significance if the price meanders through to the point. In such a case the future direction of the price cannot be predicted. More often than not, a break-out from a triangle is such that the trend prior to the triangle formation continues, but there are so many examples of opposite behaviour that an investor must wait for the break-out to occur before taking a position.

Since the side of a triangle through which the price breaks out can also be considered to be a trendline, the same criterion must be applied as with trendlines, viz. that a 5% penetration must occur before the penetration is seen as significant. This is true whether a horizontal or sloping side is being considered.

Note that it is extremely rare to be able to construct a triangle in which all peaks exactly touch one side and all troughs exactly touch the opposite side. A degree of tolerance must be allowed.

Expanding Triangles

Although in theory expanding triangles should be no less common than contracting ones, in practice they are quite rare. They take the form of a cyclic oscillation in the share price growing in amplitude as time goes by. Since they are quite rare, it is not necessary to subdivide them into further categories of right-angles, isosceles, etc. These expanding triangles are imperfect in the sense that they do not start from a point, but the first oscillation within their confines is normally quite small. An excellent example of an expander where a break-out in either direction has yet to occur can be found in the Pearson share price, as shown in Figure 9.7. The first peak that can be identified as lying on the upper side of the triangle is in June 1995, followed by a trough in early July. The next peak on the upper side of the triangle was in August 1995. Subsequent troughs all lie on a horizontal line, defining the lower side of the triangle. However, the peaks lie on or close to the line which was drawn through the first two peaks, so defining the upper side of the triangle. The price is still contained within the triangle. The most probable break-out from this formation is through the lower line, which of course is a resistance line by the criteria discussed earlier. Once the price breaks out the usual fall to be predicted is for a similar distance below the lower side of the triangle as the length of the third side, i.e. the distance between the upper and lower sides at the time of penetration.

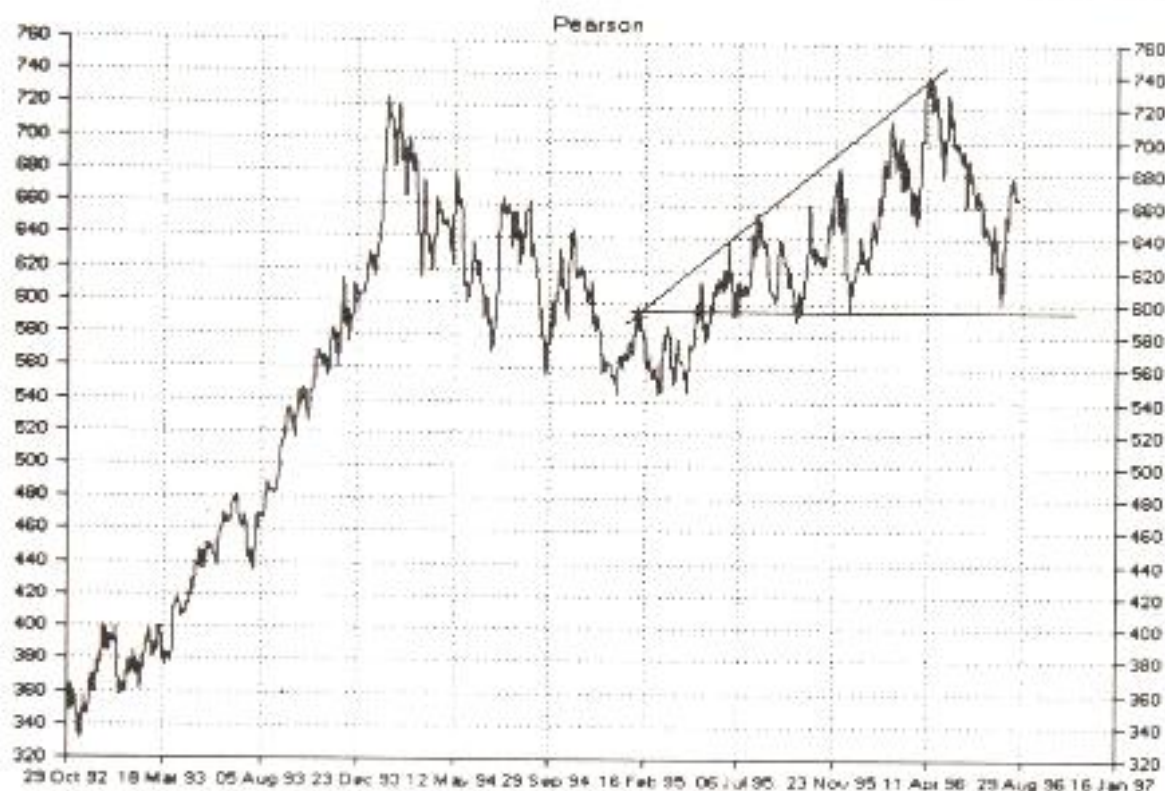


Figure 9.7 An expanding triangle in the Pearson share price

Ascending Right-angled Triangle

The upper side of these triangles is horizontal, and can therefore be considered to be a resistance line. The lower side is sloping upwards, i.e. ascending, and can be considered to be a rising trendline which acts as a support line. The two lines meet at the apex of the triangle. The price movement is contained between these two lines because short term oscillations are gradually reducing in importance.

A good example here is the case of Thames Water in late 1994 and early 1995 (Figure 9.8). There are some five peaks which form the upper, horizontal side of the triangle at a level of about 493p, and four troughs which lie on or close to the ascending line shown.

Since the horizontal line is at 493p, the 5% level is 518p, i.e. a rise above this level is necessary in order to be significant. Thus the short term rise to 514p does not meet this 5% criterion, so that no investment action would be taken on this rise. The same applies to the fall below the ascending side of the triangle, and so the sharp fall to 472p is some 4p above the threshold required. Although the price exits from the triangle fairly near the apex, it is not exactly at the apex, and therefore the above comment predicting the subsequent price movement does not apply. Here the exit from the upper side implies a further rise, a prediction which can be seen to be true.

A triangle occurring over a much shorter time span can be seen in the case of Zeneca (Figure 9.9). The triangle covers just five months, and as



Figure 9.8 An ascending right-angled triangle in the Thames Water share price



Figure 9.9 A short term ascending right-angled triangle in the Zeneca share price. Following a temporary break-out through the top, the price has broken out upwards near the apex

with the previous example there is a false break-out on the upper side of the triangle which does not achieve the 5% threshold. A few weeks later the price does rise by more than the 5% level to just over 1500p, although it remains to be seen how significant the break-out will be over the course of the next few months.

Descending Right-angled Triangle

The lower side of these triangles is horizontal, and can therefore be considered to be a support line. The upper side is sloping downwards, i.e. descending, and can be considered to be a falling trendline which acts as a resistance line. The two lines meet at the apex of the triangle. The price movement is contained between these two lines because short term oscillations are gradually reducing in importance.

A medium term descending triangle can be seen in the Reed International share price during 1994 (Figure 9.10). The oscillations in the price are at their maximum of about 220p at the beginning of the triangle in late November 1993. The price rose from 727p in November to 947p by 31st January 1994. The oscillations gradually died down to just a few pence before the price left the triangle virtually at its apex in March 1995.



Figure 9.10 A medium term descending right-angled triangle in the Reed International share price. Since the price left the triangle at its apex, it was not possible to predict the future direction of the price movement

Because the price leaves the triangle at this point, rather than by breaking through one of the sides, the future course of the price cannot be predicted until a 5% movement has occurred in a particular direction. In this example the price rose consistently over the following year.

An example of a descending triangle where the price left well before the apex can be seen in the Adwest share price (Figure 9.11). The base of the triangle can be seen to run at around 152p. The price entered the triangle in April 1993 and rose to 198p before falling back to the base. The next peak at 202p was the first peak on the upper side of the triangle. The price oscillations gradually dampened as time progressed, and the price dropped through the base in September 1995. The significance level 5% below the triangle base at 152p lies at 143p, and the price dropped below this to 142p on 27th October. This heralded a significant fall from that point onwards, the price reaching 112p by 11th March 1996.

A two-year triangle can be seen in the chart of the FTSE100 Index (Figure 9.12). The price entered it on 6th January 1993 and finally left it in March 1995. The first peak was at 3520.3 in February 1994, and the next trough was in June 1994 at 2931.9. The initial oscillation of more than 500 points was gradually whittled down to 100-point fluctuations by the end of 1994 and the beginning of 1995. In contrast to the previous example, the price left the triangle on the upper side. This break-out was significant, since the Index then rose consistently to the 3800 level.



Figure 9.11 A descending right-angled triangle in Adwest is followed by a significant break-out through the base of the triangle



Figure 9.12 A long term descending triangle in the FTSE100 Index in which the break-out is through the upper side

These two examples where breakouts have occurred on opposite sides of the triangle show how important it is to wait for the 5% significance level to be broken before any investment action is taken.

Isosceles Triangle

A good example of an isosceles triangle can be found in the National Power share price during the second half of 1994 and the first half of 1995 (Figure 9.13). The line drawn through the tops of the succession of peaks formed during this period slopes downwards, while the line joining the troughs slopes upwards. Thus we have a rising uptrend acting as a support line, and a falling downtrend acting as a resistance line. The slopes of these lines are such that the triangle formed is virtually symmetrical about a horizontal line drawn through the apex, i.e. is isosceles. Because a horizontal line in the previous two types of triangle is replaced by a sloping line in this case, this necessarily means that the amplitude of the short term oscillations is being reduced much more rapidly than in the previous cases.

This example is characterised by a false break-out from the lower side of the triangle. At the time the price fell below the lower side, the triangle side was at 470p. Thus the 5% point would lie at 446.5p. The price dropped below this, but the fall thereafter was modest, reaching 426p. However, the



Figure 9.13 An isosceles triangle in National Power. The price break-out through the lower side was quickly reversed into a price rise.

investor selling at 445p would be reasonably pleased when the price continued down a further 20p or so without him. However, he would have been less pleased with the subsequent movement, since from this point the price rose to the level of the apex of the triangle at 480p before reacting back to 439p and then reaching a high of 558p.

Scalene Triangle (Wedge)

So far we have looked at two types of triangle, those with upper and lower sides sloping in opposite directions and those with one side horizontal and one side sloping either down or up. There is obviously a third type in which both sides slope in the same direction, but at different angles. These are known as wedges, and of course they can point either upwards or downwards.

We saw that triangles in which the short term oscillations were increasing, i.e. the triangle was expanding, were very rare, but triangles in which the short term oscillations were decreasing were common. The same is true of wedges. The vast majority are those in which the oscillations are decreasing, so that the wedge points to the future. Logically, there should be no reason why a reverse-pointing wedge should not occur, but they are very uncommon.



Figure 9.14 An expanding wedge formation in the British Steel share price

Expanding Wedge

One of the few examples to be found is shown in Figure 9.14. The price is contained between two lines that are rising, with the amplitude of the short term oscillations increasing. At the time of writing the future direction of the price is yet to be determined, since the price has not penetrated either of the two containing lines.

The difference in slope of the two lines is not great, which accounts for the fact that the point of the wedge is well in the past, before 30th December 1988 at which the timescale of the chart begins.

The base of the wedge has five troughs lying close to or on it, starting with the one in December 1993 and ending with the one in July 1996. There are five peaks lying close to or on the upper side, the last one being in April 1996.

Contracting Wedge

The vast majority of wedges have their points directed to the future, due to the fact that the lower of the two lines forming the wedge has a lesser slope than the upper because of the reducing nature of the short term oscillations contained between the two lines.

Some writers maintain that the more usual break-out from a wedge formation is in the opposite direction to the way the wedge is pointing, but in this author's experience the break-out is more often such as to reverse the direction of the trend entering the pattern. There are several examples of wedges in the top 100 shares over the last few years, and they nearly all follow this rule.

A good long term example is that of United Biscuits, shown in Figure 9.15. The trend at the point of entry into the wedge formation at the end of 1992 was upwards. The wedge is pointing downwards. The wedge is well defined, since there are five troughs lying close to or on the base and four peaks lying on or close to the upper side. There was a false break-out in January 1995, when the price rose quickly from the upper side at 326p to a peak at 362p. The price made little progress, and eventually re-entered the wedge in July 1995. The price left the wedge permanently in November 1995 at 270p and meandered downwards to 210p at the time of writing. Thus the true break-out was such as to reverse the direction of the price when it entered the wedge.

If further proof is needed of the rule that a wedge formation is usually a reversal formation, then it is provided by Guinness, as shown in Figure 9.16. Here the downwards pointing wedge took almost a year in its formation. There are five peaks which lie on or close to the upper side



Figure 9.15 United Biscuits has a downward pointing wedge covering three years of price movement



Figure 9.16 Guinness has a downward pointing wedge covering just over a year of price movement. The price direction is the opposite from that when it entered the wedge

and three troughs along its base. Following the first trough in July 1994 at 430p, the price rose rapidly to the top of the wedge at 502p, although of course the wedge was not defined at the time. There are a further two peaks on the upper side of the wedge before the next trough was formed to enable the base of the wedge to be defined. Before the wedge was left behind, there were two more peaks and a trough lying on the sides.

The break-out from this wedge was certainly dramatic. The price left via the upper side in March 1995 at 420p, and within a few days had climbed to 470p, before rising eventually to over 530p.

FLAGS

Flags are very short term periods of hesitation which follow a rapid rise or rapid fall in the price. They are mini-equivalents of triangles and rectangles, but in the latter case they are more often parallelograms than rectangles. They should last for no more than three weeks before the price resumes its previous direction. Thus they differ from most of the hesitation patterns discussed in that the most likely future direction of the price is known. The extent of the future movement is usually equal to the distance

which the price has already moved up or down the flagpole to the flag. Thus the flag can be considered to be an area halfway up the flagpole.

The Allied Domecq share price shows two flags following two sharp price rises (Figure 9.17). The first occurs in September 1993, following the rise from 545p. The price spent a few days bouncing between the 590p and 600p levels before continuing upwards to 632p. This is a case where the flag is not halfway up the flagpole, but rather nearer to the top. However, the second flag in this chart is closer to the ideal. The price rose rapidly from the base at 550p to form a flag in the 612p to 632p area. After a few days of indecision, the price rose rapidly again to 691p.

It should be noted that flags behave in the expected sense of the sharp rise or fall continuing further on about seven occasions out of 10. Even in the chart of Allied Domecq, a false flag can be seen in the price fall from 615p in April 1994. The price appeared to form a flag at the 565p level, but did not fall any further. Rather it moved sharply upwards to 590p, just about halving the extent of the previous fall.

A more well-behaved version of a flag can be seen in the chart of Grand Metropolitan in Figure 9.18. At the time of writing the price rose almost vertically from 428p to the 450p to 455p area where it spent just a few days. It then rose again almost vertically to another flag at 475p to 477p. Thus the first flag is almost exactly halfway up the flagpole. The movement from the second flag is yet to be resolved.



Figure 9.17 There are two flags in this chart of Allied Domecq

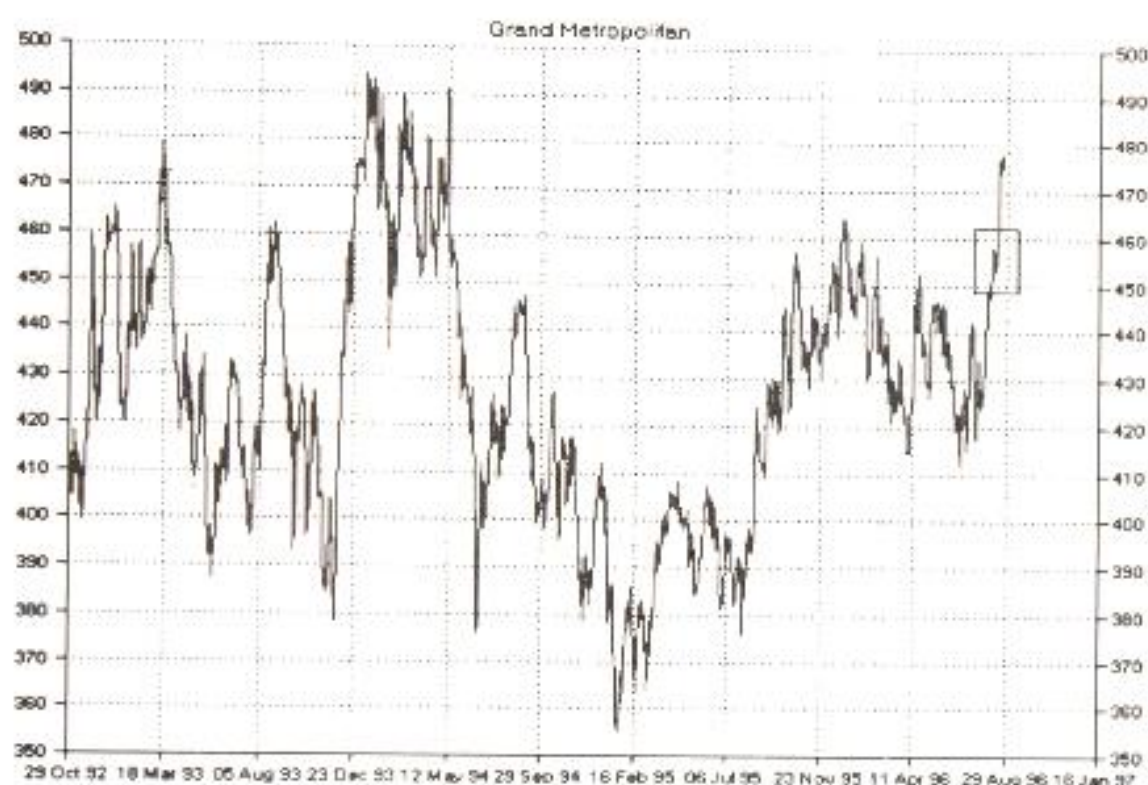


Figure 9.18 A flag in the Grand Metropolitan share price. The final flag is yet to be resolved

British Gas, shown in Figure 9.19, is an excellent example of a false flag. The price fell rapidly in May 1996 from 232p to the 172p to 180p area, where it stayed for a few days. The normal expectation from this point would be for a further fall of perhaps another 50p, but the price rebounded slightly from this level, thereby spoiling the flag formation.

EARTHQUAKES

There are quite a few examples of earthquake formations in the top 100 or so shares over the last five years. Such formations are characterised by a sharp fall over no more than a few days, and an equally sharp rise some months or even more than a year later. These contrast with the more common sharp bottom formations, in which the price spends only a few days in the trough before rising again. Where a share has suffered a sharp fall, the investor can therefore be on the look-out for a corresponding rise at a later date. An investor will be unable to capitalise on such a rise as it occurs, because it will occur over one or perhaps two or three days at the most, giving no time to react. The value to the investor is that the extent of the rise is usually equal to the extent of the fall, and while occasionally the rise is a little less than this, it never seems to be greater. The investor



Figure 9.19 Sometimes the price rebounds from the position of a flag, as in British Gas

should not buy immediately after the initial fall, but should wait to see that the price has stabilised and is not going to fall any further. Since the corresponding rise will occur at some indeterminate point in the future, the investor may have to wait a relatively long time before the profit accumulates.

A good example of a short term earthquake can be seen for P&O in Figure 9.20. The price fell sharply over the course of a few days in September 1995, from 550p to 464p, i.e. a fall of 86p. A few months later in January 1996, the price rose equally sharply from 463p to 562p, i.e. rise of 99p.

Reverse Earthquakes

As might be expected, there is a counterpart to the earthquake formation in which the price rises sharply over the course of a few days, and then some time later, falls equally sharply. These are not to be confused with sharp, spike tops, in which the price spends only a few days at the new level before falling back. An example is shown in the chart of Glaxo-Wellcome in Figure 9.21. The price rose rapidly in November 1995 from just below 800p to 852p in a day. The price then continued upwards at a much slower pace to reach a peak at 967p before falling to 908p. It was



Figure 9.20 An earthquake formation in the chart of P&O



Figure 9.21 A reverse earthquake in the chart of Glaxo-Wellcome

from this point that the second leg of the reverse earthquake was formed, the price falling in two days to 812p. Thus the formation is not quite symmetrical, with the rise of 55p being much less than the fall of 96p.

An investor holding this share should not have been caught by this fall, since the price at the point the fall occurred (908p) was already more than 5% down from the peak value of 967p. The use of a stop loss would have prevented such a loss.

10

Moving Averages

Moving averages and the way in which they can be calculated were discussed briefly in Chapter 2. It was also pointed out that moving averages were smoothing devices which removed fluctuations of periodicity equal to or less than the span used for the average. The result of the smoothing process can then be considered to be a 'better' representation of the movement of the share price than the actual share price data. The greater the span of the average which is used, the smoother is the resulting plot.

A good example to illustrate the effect of various moving averages is the chart of the BPB Industries share price, a history from the beginning of 1983 being shown in Figure 10.1. It is a good example because of the large amount of cyclic movement which is obviously present.

A commonly used moving average is one of 200 days, and this is used to isolate the underlying longer term trends in a share price history. As was mentioned above, an average removes fluctuations of periodicity less than or equal to the span of the average. Thus we would expect a 200-day moving average to remove cycles of wavelength of 200 days or less. Looking again at the chart in Figure 10.1, we can see that the cycles which are in evidence for the period since early 1988 have trough-to-trough or peak-to-peak distances which are about half a year or less, i.e. their wavelengths are half a year, about 120 business days. Thus on the basis of what we have just said, we would expect these to be removed by a 200-day average. On the other hand, the large cyclical movement which had peaks in October 1987 (just prior to the crash) and again in early 1994 has a wavelength of nearly seven years. Thus we would not expect this cycle to be removed by a 200-day average.

That this approach is correct can be seen by the shape of the 200-day average of the BPB share price which is illustrated in Figure 10.2. As predicted, the cycles which were visible since 1988 have for the most part been removed, but the cycle which has its peaks in 1987 and 1994 can still be seen.

By the same argument, the use of a shorter span moving average such as 20 days would result in the removal of cycles of 20 days or less wavelength. Since most of the cycles which are present since 1988 have wavelengths of

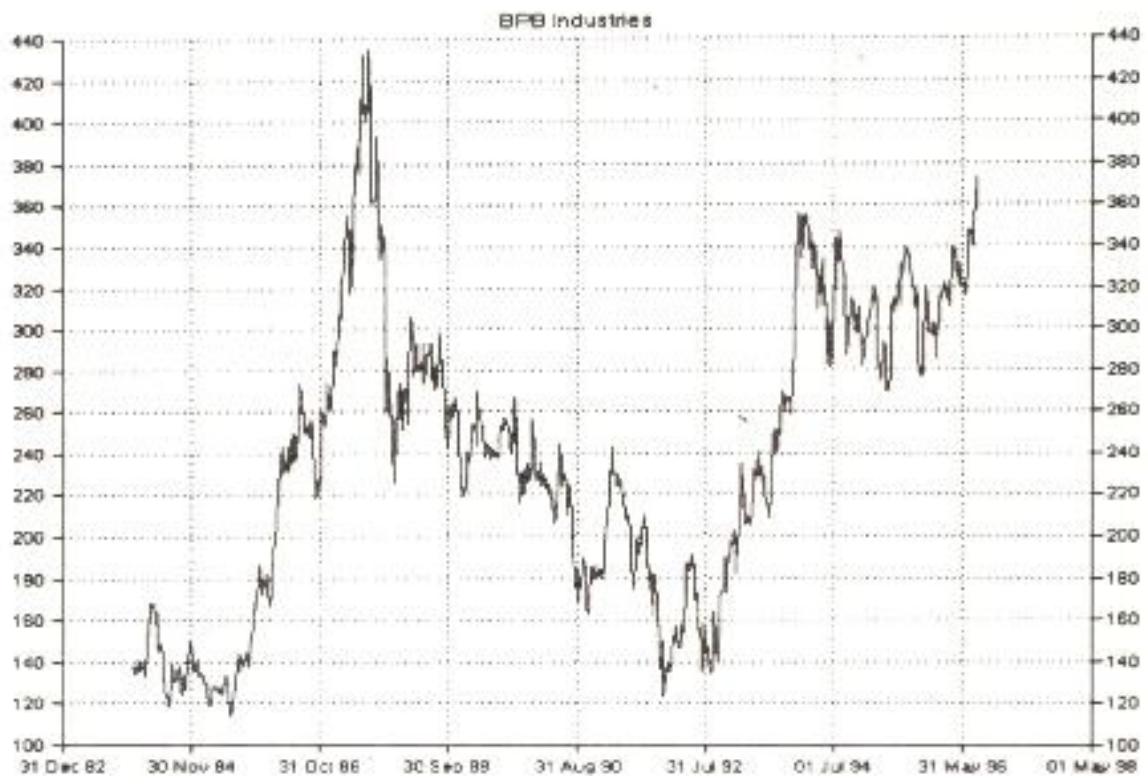


Figure 10.1 The share price history of BPB Industries since 1983

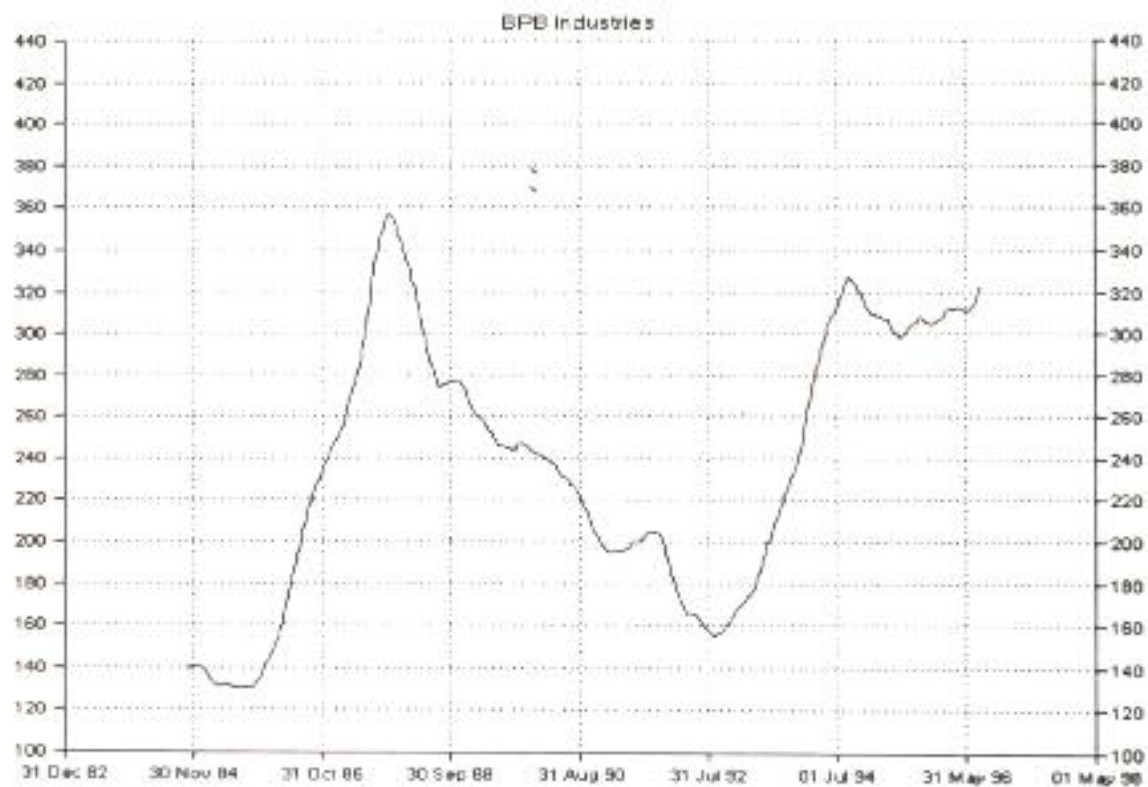


Figure 10.2 The 200-day moving average of the BPB share price since 1983

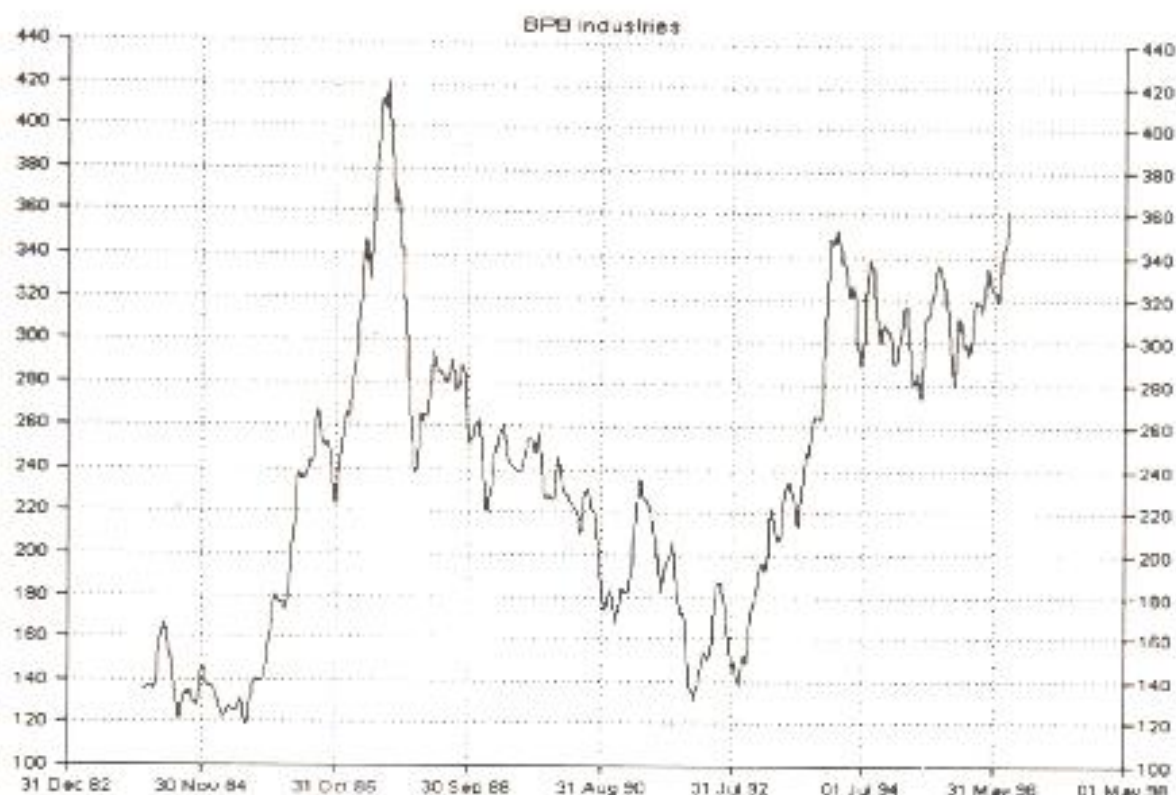


Figure 10.3 The 20-day moving average of the BPB share price since 1983

much more than 20 days, we would not expect these to be removed by such an average, although we would expect to lose the random day-to-day movement and any cycles which have very short wavelengths of less than 20 days. That this does indeed happen can be seen quite clearly from the plot of the 20-day moving average of the BPB share price in Figure 10.3.

In order to get a clear idea of the smoothing effect of a moving average, the final few months of the BPB share price are shown in Figure 10.4 with the 20-day average superimposed. In this case, in order to preserve the relationship between the data and the average, the average has been offset half a span back in time. In this mode of plotting, the average is directly superimposable upon the data (see the chapter on channel analysis). It can now be seen that the average is the best smooth line drawn through the data so that the very short term fluctuations are removed.

These few examples should serve to put into perspective the reasons for selecting particular spans. For the trader interested in short term movements, it is essential that cycles of short wavelength are not removed from the data. Thus a short span average, for example of 10–50 days, must be used in order to preserve such cycles while removing the day-to-day variations. On the other hand, the longer term investor is more interested in the long term underlying trends and not in the shorter term trends. Thus these short term trends can be removed and the longer term trends highlighted by selecting averages such as 200 or 240 days.

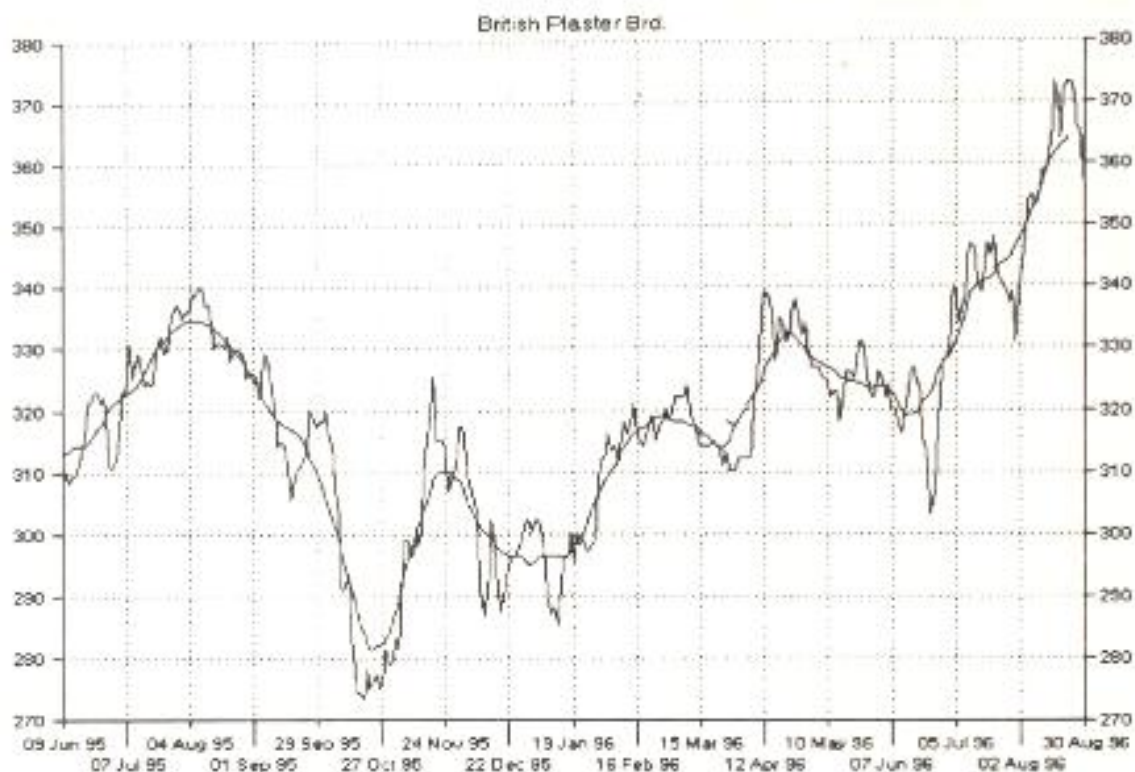


Figure 10.4 The 20-day moving average and the BPB share price since June 1995. The average is plotted half a span back in time so as to show that the average is a smoother version of the price itself.

MOVING AVERAGE APPLICATIONS

There are almost as many ways of applying moving averages as there are investors who use them. The four main methods are:

- Buying and selling when the share price crosses the moving average
- Buying and selling when one moving average crosses another
- Buying and selling when a moving average changes direction
- Using an average to give the current state of an underlying trend, usually long term.

Price Crossing a Single Average

In this method, as in all other methods discussed in this chapter, moving averages are plotted with no lag, i.e. the latest calculated point is plotted on the time axis at the same place in time as the latest data point used to calculate it. Thus the average and the data will always end at the same point in time.

The signal to buy is when the share price, which will have been running below the smoother average line, crosses up through this line, and

conversely the time to sell will be when the price falls down through the average line. Some investors use this method only for generating a buying signal and do not use it for selling. They use methods such as a stop loss in order to secure the profit from the rising share price or to terminate a trade which fails to generate a profit in the first place.

A derivative of this price crossing method is to use two averages. The second, longer span average is not used in conjunction with crossing by the share price, but is used to modify the buying or selling decision generated by crossing of the first average. Thus a share will only be bought when a buying signal is generated if this second average is in a rising mode, and a share will not be sold if this longer term average is in a falling mode. Use of this second average therefore comes under the fourth category in the above list, where it is used solely to give an indication of the underlying trend. Used in this way, this will naturally reduce the number of buying and selling opportunities compared with the use of just a single average.

The only decision which has to be made with the single average method is the span to be used for the moving average. While, as we have stated, a 200-day moving average will leave only the long term trends visible, we will find that such an average is unsuitable for the method because of the time lag associated with it. Being much smoother than a short term average, it is much slower to respond to a rise or fall in the share price than a short term average. This fact can be demonstrated by two examples, one in which a crossing of the 200-day average is used as a buying or selling signal, and one in which a crossing of a 50-day average is used for the signals.

Figure 10.5 shows the share price of BPB since the beginning of 1994, and superimposed upon this is a 200-day moving average. The vertical lines below the average indicate points where the price broke up through the average, i.e. generated buying signals. The vertical lines above the average indicate points where the price fell down through the average, i.e. generated selling signals. Thus we can see that during the period in question there were seven buying signals and six selling signals. Of the six pairs of buying/selling transactions, half of these gave a selling signal at a price lower than the previous buying signal, i.e. the investor would have lost money in all but one transaction. Thus quite obviously a 200-day average is far too unresponsive for such a method to succeed.

Figure 10.6 shows a similar chart but with the average now reduced in span to 50 days. This time there were 11 complete transactions, now split as five losers and six winners. Thus it has given a slight advantage to move the span of the average to shorter periods. Notice also that the buying signals in Figure 10.6 that have a direct equivalent in Figure 10.5 occur considerably earlier in time.

It might appear that it would be an advantage to move to even shorter averages, such as 20-day or 10-day. The problem in doing this is that the number of false signals, i.e. those occasions where the price crosses the

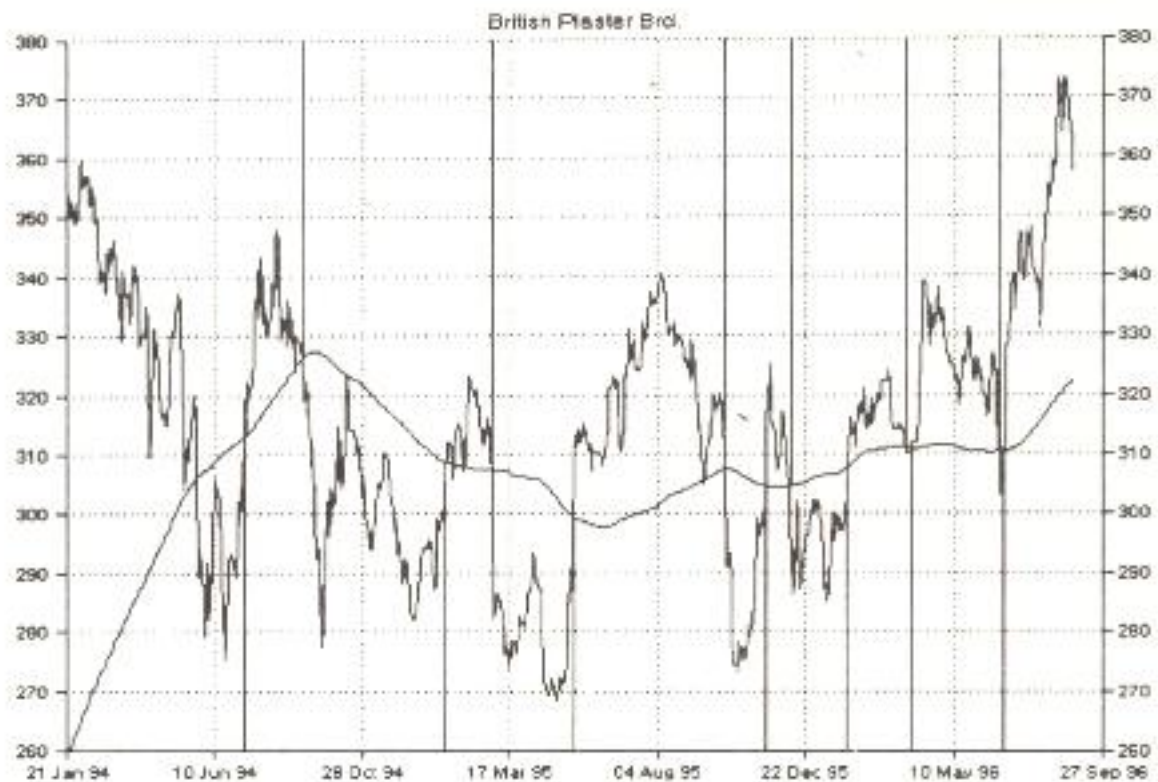


Figure 10.5 Crossings of the 200-day moving average and the BPB share price since 1994

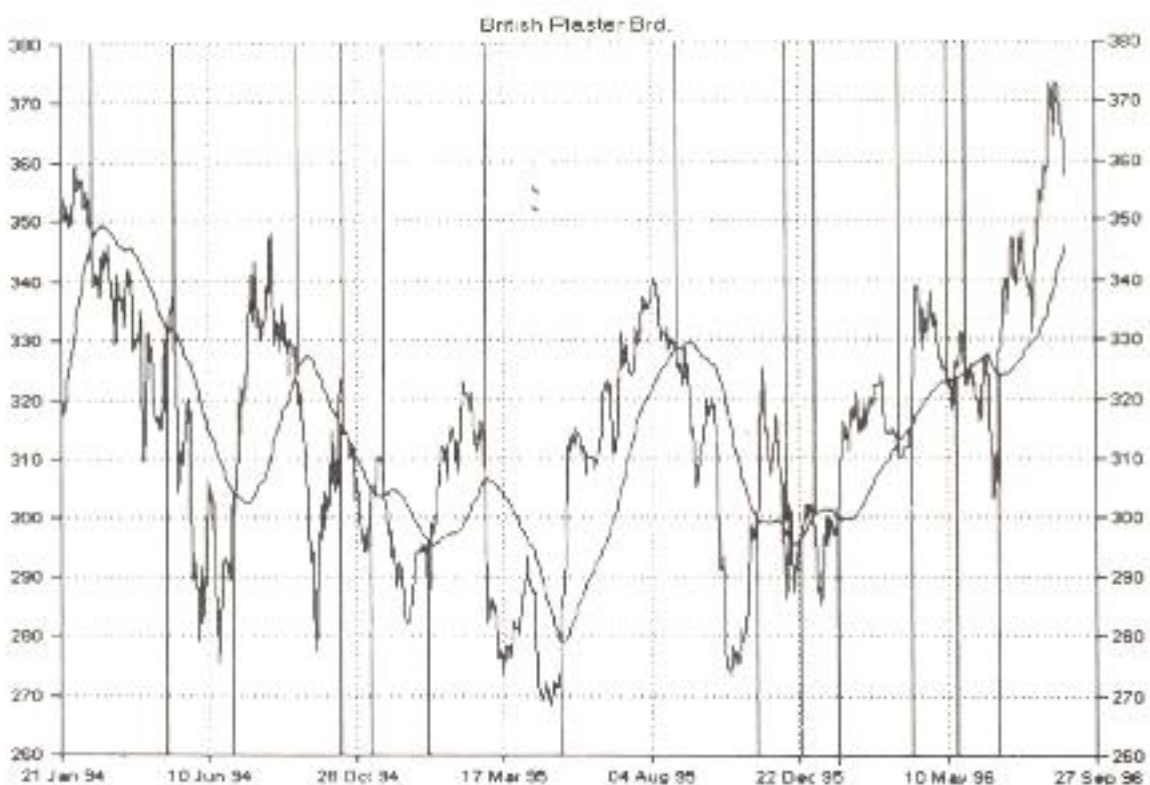


Figure 10.6 Crossings of the 50-day moving average and the BPB share price since 1994

average only to recross it in the opposite direction a few days later, increases dramatically. Such situations obviously lead to losses. This leads to the conclusion that a little research has to be done to determine the optimum average for a particular share. With a computer system this is an easy task, but if averages are calculated manually, then it is daunting to compute, say, 10 different averages for one share. It will usually be found to be the case that an average somewhere between 30 and 50 days will give the best results, i.e. the greatest overall gain. In order to get an appreciation of the price movement that occurs between buying and selling signals, the dates of the buying and selling signals and the share prices at those dates for the 50-day average in the case of BPB are shown in Table 10.1. These of course correspond to the signals shown in Figure 10.6. Note that there are three occasions where there was a false signal in the sense that the selling signal occurred less than 10 days after the buying signal. In such cases the chances that the price makes a significant advance are small. Two of these three cases saw a small loss and one just a penny rise.

Note that the five losing situations gave only small losses, while the winning situations gave slightly larger gains. If dealing costs are ignored the percentage gain over the 11 transactions is 2.1%. If dealing costs are applied to the figures, then the investor would have come out with a very small loss.

The last column of Table 10.1 shows the status of the 200-day average. As mentioned above, the status of such a long term average is often used as a modifier to the buying or selling signal. As a buying modifier, it is used to confirm a buy if it is rising, but negate a buy if it is falling. The opposite view is taken for selling decisions, although it is unusual to use this method for other than buying decisions. As can be seen from Table 10.1, used in this way only six buying decisions would have been made, and five of these would have made gains.

Table 10.1 Dates and prices for buying and selling signals generated by the BPB share price crossing the 50-day average

Date	Buying price	Date	Selling price	200-day average
03/05/94	334	09/05/94	329	Rising
05/07/94	304	31/08/94	324	Rising
12/10/94	320	14/10/94	314	Falling
10/11/94	304	23/11/94	303	Falling
06/01/95	299	28/02/95	294	Falling
11/05/95	284	29/08/95	325	Rising
14/11/95	298	08/12/95	297	Falling
27/12/95	298	05/01/96	299	Rising
30/01/96	299	26/03/96	311	Rising
08/04/96	312	13/05/96	322	Rising
17/05/96	321	29/05/96	323	Falling

The BPB case was chosen particularly to illustrate situations where the use of the average crossing method is not very successful and to show why this is the case. This approach is a necessary one, since an investor should always be aware of the reasons for a method failing in order to be able to correct for it. The BPB situation, with its very cyclical behaviour over the past two years, has offered, at least theoretically, good profit-making prospects for investors who could time the buying and selling decisions correctly. The cycles have given price rises of between 20% and 30%.

The reason for the poor performance of the method in the BPB case is simple. It is because the price rose rapidly from the troughs and fell back rapidly from the peaks. With a rapid rise, the price overshoots the rising average by a large amount, thereby limiting the proportion of the rise which is captured by the investor. At the other end of the transaction, a rapid fall has the same effect, the price having fallen a considerable distance from the peak before the selling decision is triggered. As was mentioned above, although the obvious fix for this problem would seem to lie with a reduction in the span of the average, so that the average begins to rise or fall much sooner, this is negated by an increase in the number of false signals.

Where the average crossing method does score is in those situations where the share price has tended to follow gentler but more sustained rises. In these cases the price crosses the average at a much more reasonable rate so that the investor is not faced with a large gap between the average and the price at the time of the buying signal. A good example of such a successful application of the crossing method is shown by the share price of British Petroleum where a 200-day average is superimposed (Figure 10.7). Here we have a sustained rise in price from late 1992. Since the price crossed up through the average before the first date on the chart, the investor would already be holding the share in late 1992. As can be seen, the price virtually doubled before the selling signal was given. Even this can be considered to be a false signal, since the dip below the average was of a temporary nature, the price then continuing to climb.

The general conclusion from this discussion of the average crossing method is that although it is widely used, a great deal of research is required to find the best average for a particular share, and even then, the results over a long period are not particularly startling.

Two Averages Crossing

As was pointed out above, one difficulty with the price/average crossing method is that fairly short term fluctuations in the share price can take it above and below the average repeatedly, giving false signals which lose the investor money. One way around this is to use the crossing of two averages. The shorter term average is used as a substitute for the price, and since it will now be smoother than the price fluctuations, there should be



Figure 10.7 The price crossings of the 200-day average for the British Petroleum share price. The sustained rise in the share price kept the number of crossings down

fewer false signals given. The penalty for this improvement will be that the shorter term average will have lost some speed of response when compared with the price itself, and therefore there will be a longer lag time until the signal is given. This will reduce the effective gain which can be made from the transaction. As with all stock market investment, what we have is a method of reducing the risk which will always result in a reduced return.

As a start, we can take two averages which are fairly widely spaced. Thus a 200-day average will give a good indication of the longer term trend, and a 50-day average should give a reasonably smooth crossing average. Figure 10.8 shows that the number of buying and selling signals is now reduced to four, but that there is only one matched pair of a buying signal followed by a selling signal. If the first buying signal on 28th July 1995 is examined more closely, it will be seen that it lags well behind the points at which the price crosses the 50-day average and then the 200-day average. This delay is so serious that the price has risen to 310.5p on 30th June 1995 from the low point of 269p before the signal is given. The corresponding selling point is not given until 10th November 1995, when the price is down to 297p from a high of 340p. Thus although the share price showed an excellent rise between April and August 1995 of 26% (269p to 340p), this method resulted in a loss of 4.3%. So we can conclude

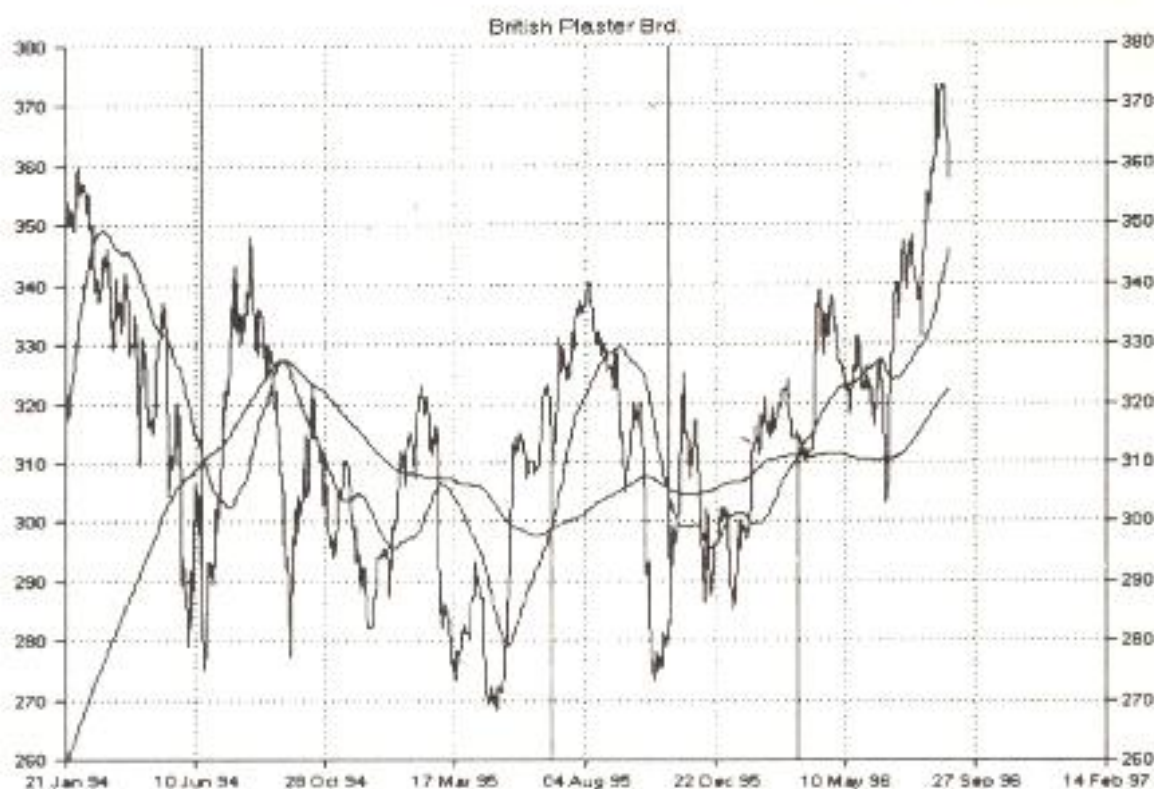


Figure 10.8 Buying and selling signals generated by crossing of the 50-day and 200-day moving averages of the BPB share price

that the averages employed were of far too long a span to give any sensitivity to the price rise and fall.

Moving to shorter term averages, Figure 10.9 shows the effect of using a 10-day average and a 50-day average. Taking the June to November cycle first, it can be seen that the buying point occurs much further back in time, occurring on 26th May 1995 when the price was 314p. This compares with 310.5p on 30th June in the previous example. In this case, although the decision point occurred sooner, unfortunately, due to the rapid short term movements in the price, a slightly inferior buying price was indicated.

The selling point was also moved back to a point nearer to the peak price, occurring on 8th September at 323p, compared with 10th November at 297p in the previous example. We have now captured a gain of about 3% compared with a loss of 4.3%. Following this particular buying/selling operation, there are three more pairs, each giving a small loss.

There is a way in which the two averages crossing method can be improved dramatically, and that is by buying only at a crossing point if both averages are rising. Such crossing points have been called 'golden crosses'. Their effect in the BPB case is to rule out these last three losing transactions, leaving only the first one with the small gain.

This example of BPB has been chosen because it is a difficult one, stretching these moving averages methods to the limit. It is useful to

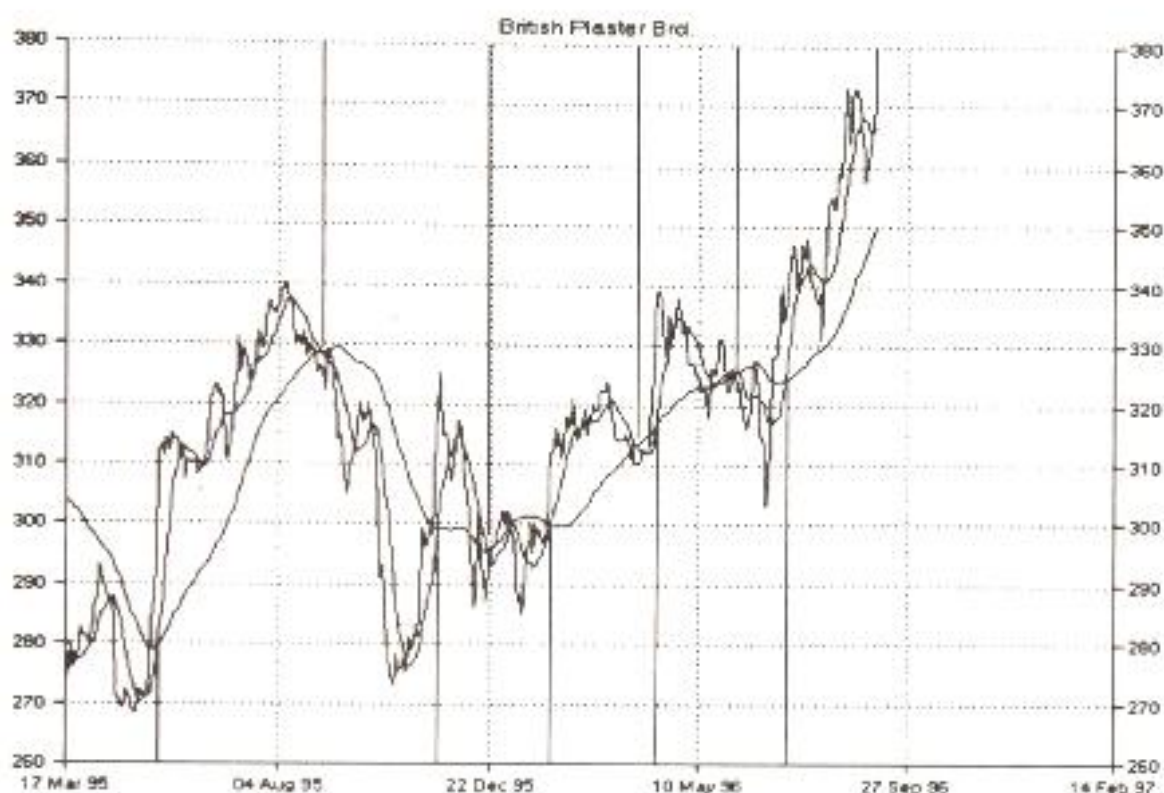


Figure 10.9 Buying and selling signals generated by crossing of the 10-day and 50-day moving averages of the BPB share price

compare this with a well-behaved example in which golden crosses give useful profits. Such an example is shown in Figure 10.10, with the 10- and 50-day averages shown for British Steel. The short term average is rather difficult to see because it remains fairly close to the share price itself.

There are eight golden crosses shown where the two averages cross, with the proviso that both averages are rising at the time the crossing occurs. In six of the crosses, the price rise which follows is quite profitable. In the second and third crosses from the beginning of the chart, the price rise in the days before the cross is so rapid that the price is at its peak at the time of the cross. In such cases, the price begins to fall at the very time the buy signal is being given. Even so, to be given six good buying signals out of eight has to be considered a vindication of the method in the case of British Steel.

It must be emphasised, however, that each share behaves differently, and a true evaluation of any of the methods discussed here can only be made with a great deal of effort across a large number of shares.

Change in Direction of an Average

The principle behind this method is that moving averages isolate trends. The type of trend being isolated, i.e. whether it is short, medium or long



Figure 10.10 The British Steel share price: golden crosses where 10-day and 50-day averages cross and both are rising

term, depends entirely upon the span of the average being used. Once an average changes direction, then the trends of longer periodicity than the span of the average have also changed direction. How long they remain running in the new direction cannot be determined, since a subsequent reversal of direction will depend upon random factors. It is sufficient to know that the end of a trend will be signalled in exactly the same way as its beginning, viz. by a change in the direction of the appropriate moving average.

As with any other moving average method, the crucial factor is the span used for the average which is being used as an indicator. Large spans will isolate long term trends, but the delay in a change of direction of the average will mean that a considerable portion of the ensuing price rise or price fall will have already occurred. In the author's book *Stocks and Shares Simplified* the use of two averages was advocated, a 5-week (25-day) average for those investors who wished to take advantage of very short term trends, and a 13-week (65-day) average for those investors who had longer term ambitions. It was also pointed out that while the shorter average captured more of the gain, it also gave more false signals.

As an example, a plot of BPB with the 25-day average is shown in Figure 10.11. The turning points in the average are marked by vertical lines, those in the top half being the selling signals, and those in the bottom

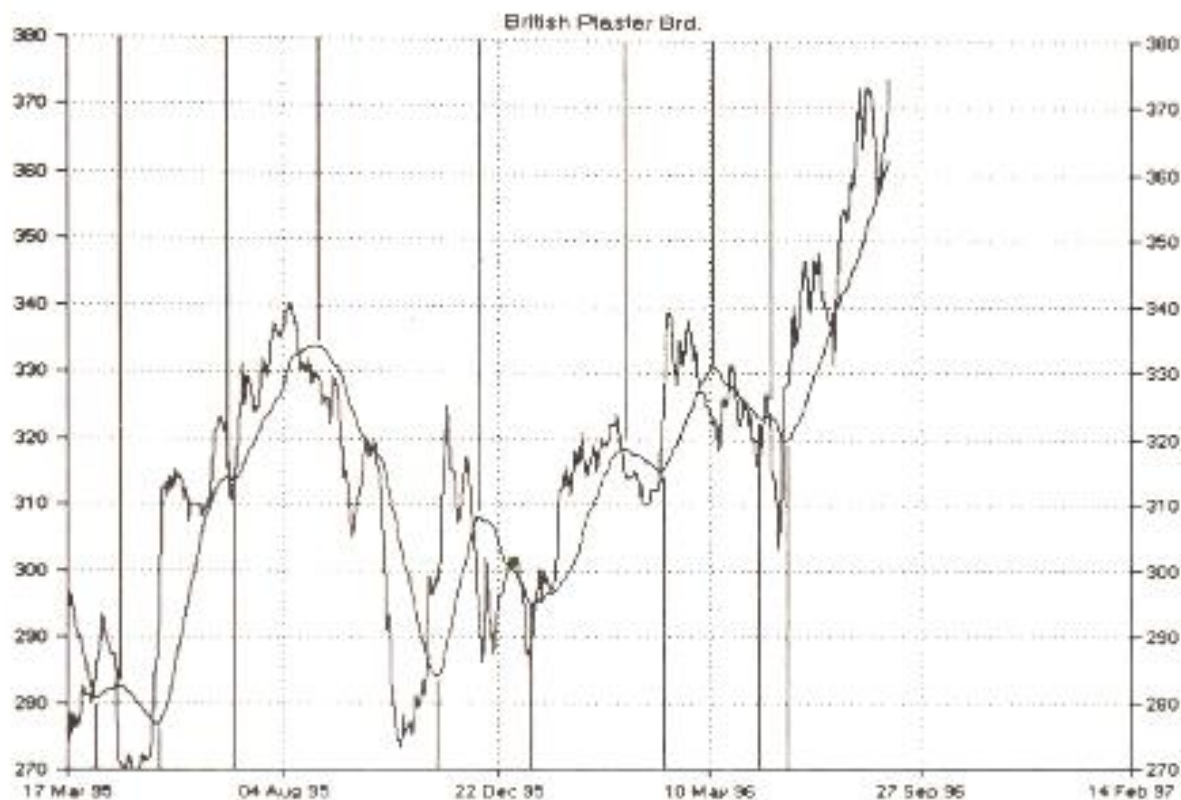


Figure 10.11 Buying and selling signals generated by change in direction of the 25-day moving average of BPB

Table 10.2 Buying and selling points in the BPB share price in Figure 10.11

Date	Buying price	Date	Selling price
04/04/95	286	19/04/95	271
15/05/95	288	30/06/95	310.5
04/07/95	317	25/08/95	329
13/11/95	300	11/12/95	291
16/01/96	296	14/03/96	315
09/04/96	322	15/05/96	323
14/06/96	321	20/06/96	324
02/07/96	328		

half the buying signals. There are seven possible complete transactions, and these are listed in Table 10.2. The overall percentage gain for these transactions was just under 1.6%.

This author has always held the view that taken across a large number of shares, the average turning point method is superior to the other moving average methods discussed here because of its more fundamental nature. It is focusing attention on the behaviour of trends and especially on their turning points. It will be most successful for those shares in which trends

persist for the longest, and these shares can be discovered by simple inspection of their moving averages to pin-point those which have the fewest turning points over their price history for a given average such as 25 days or 65 days.

WHY MOVING AVERAGE METHODS ARE ONLY PARTIALLY SUCCESSFUL

We have already mentioned that the mathematically correct way of presenting moving averages is with the average plotted half a span back in time, and Figure 10.4 was used to illustrate that when presented in this way, it can be seen quite clearly that the centred average is a smooth representation of the data itself. *The centred average thus represents the underlying trend of the share price when the shorter term movements which otherwise confuse the picture are removed.*

When plotted in this way, we can see that there is a gap of half of the span of the average between the last plotted point of the average and the last share price, as shown in Figure 10.12. In the figure a 51-week average

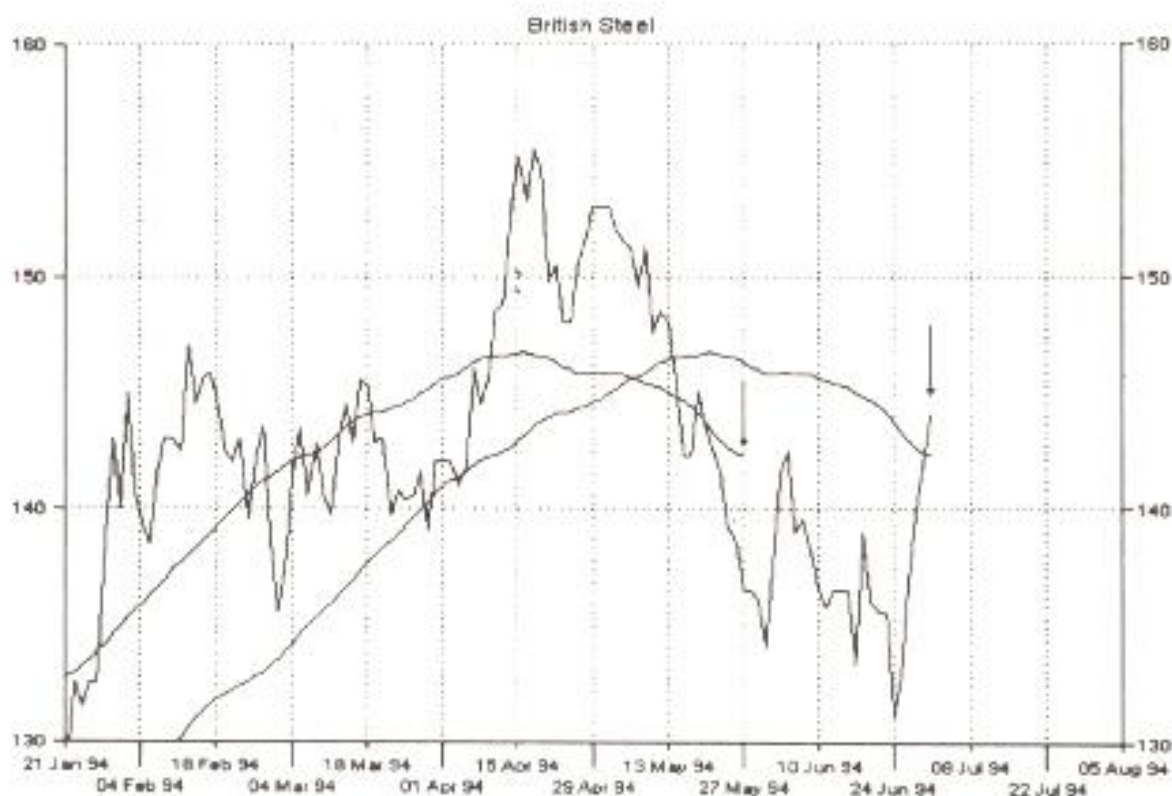


Figure 10.12 Both unlagged and centred 51-day moving averages plotted for British Steel. The centred average terminates on 27th May 1994, and the unlagged average on 1st July 1994

is plotted, in both centred and unlagged forms. The last data point is at 1st July 1994, and the last plotted point of the centred average is at 27th May 1994. Thus we have no knowledge of the behaviour of the trend in prices in this gap. Any deduction that we make about the underlying trend at the time of the last data point is therefore only an estimate.

Now we can see quite clearly why moving average methods are only correct some of the time. We are interested in the trends in share prices, and use moving averages as a substitute for the trend itself. Moreover, we are anxious to know the state of the trend at this exact moment in time. However, what is hidden in the way moving averages are normally presented when plotted with no lag is the fact that the latest value of the average is telling us what the trend was doing half a span ago in time, and not what it is doing now. Thus in Figure 10.12, the obvious deduction from the unlagged average which is plotted up to date is that the trend is continuing to fall, but this deduction may or may not be correct.

In the present example, the future course of the trend is given by the centred average in Figure 10.13. We can now see that the trend, as represented by the 51-day moving average, changed direction on 6th June 1994. Thus, the trend was rising on 1st July 1994, showing that the deduction of a falling trend from the direction of the unlagged average in Figure 10.12 was incorrect.

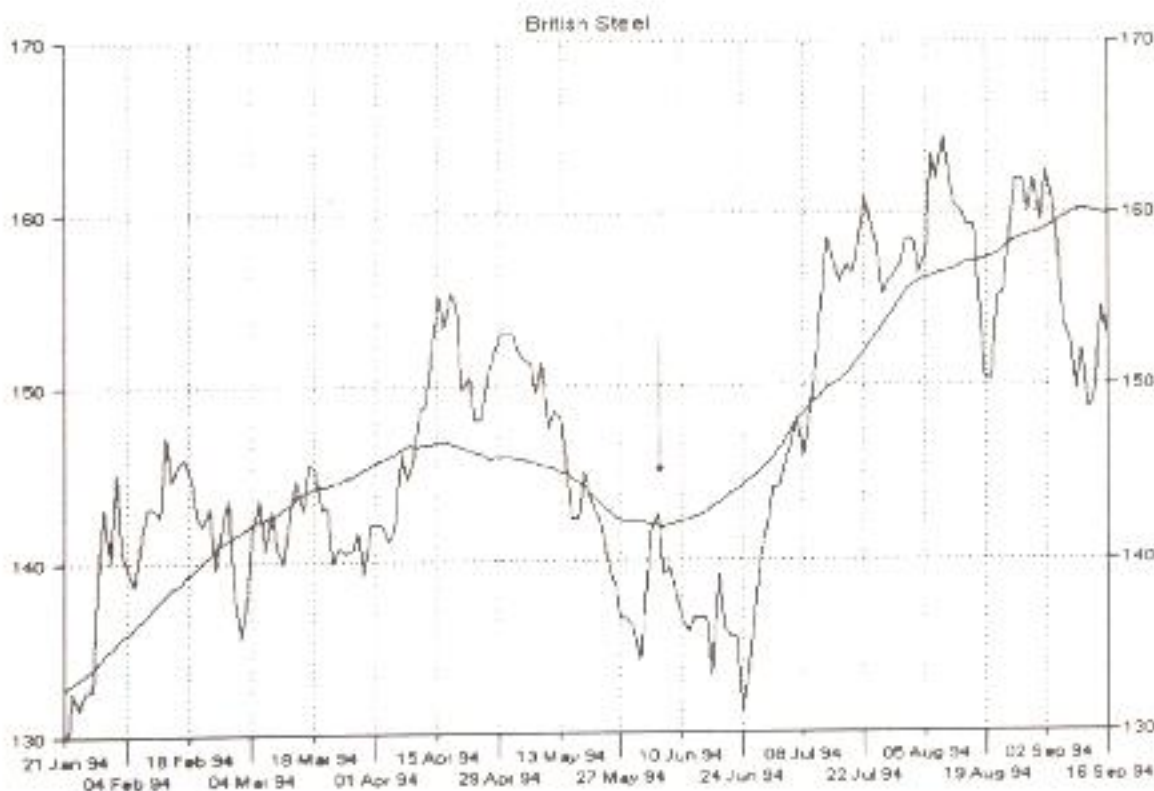


Figure 10.13 Data are now plotted further into the future. We can see that the centred average, representing the trend, reversed direction on 6th June 1994

Taking the chart in Figure 10.14, we can see that the centred average terminated on 10th March 1995, while the unlagged average terminated at the last data point on 14th April 1995. The deduction, which may or may not be correct, is that since the unlagged average is rising on 14th April, so is the trend. Moving further into the future, we can see from the chart in Figure 10.15 that in this case, the deduction from the direction of the unlagged average on 14th April that the trend is still rising turned out to be correct.

Thus we have seen one example where the trend reversed direction, and was going the opposite way to the direction indicated by the unlagged moving average, and one example in which the trend was going the same way as the unlagged moving average. The moving average methods as described in this chapter all make the incorrect assumption that the moving average tells us what the trend is doing now; in other words that if the average is rising, then the current trend is rising. We can now see why this assumption can be incorrect.

The advantage of using the average turning point as an indicator of a change in the direction of the trend is that, since the turning point is as close as half a span in the past, the trend is less likely to have reversed direction by the current time. We can estimate the probability of being

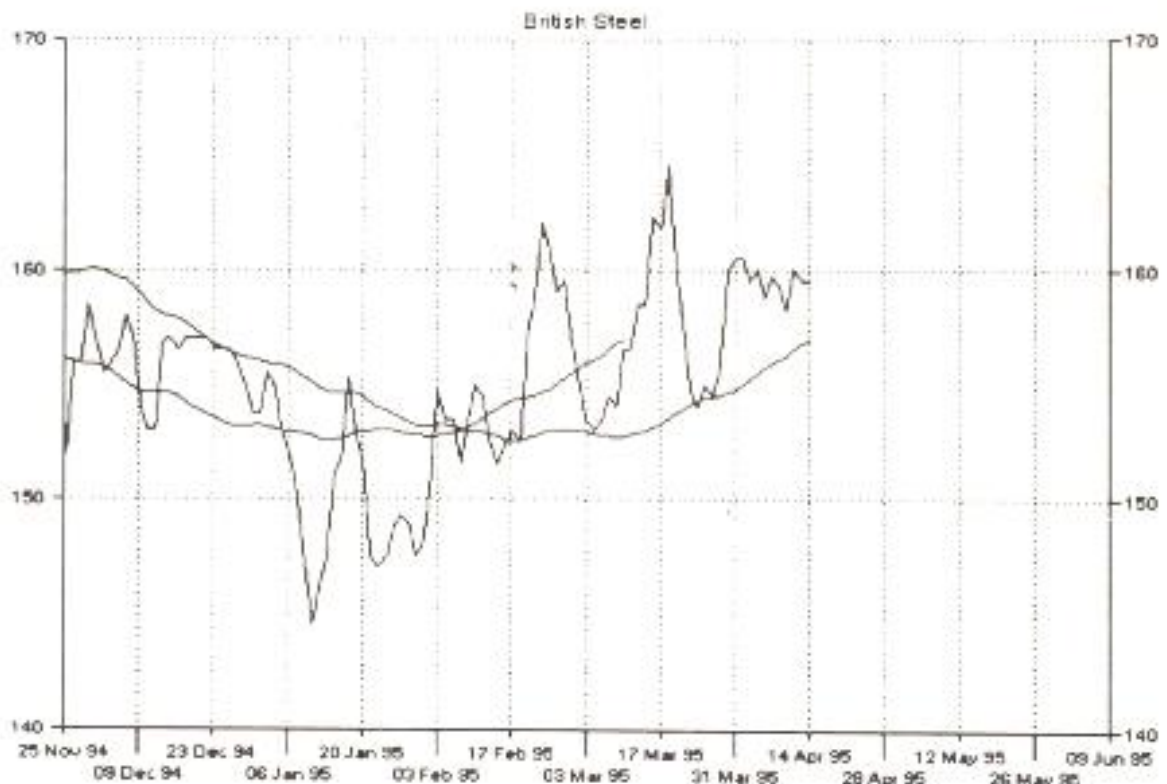


Figure 10.14 Both unlagged and centred 51-day moving averages plotted for British Steel. The centred average terminates on 10th March 1995, and the unlagged average on 14th April 1995

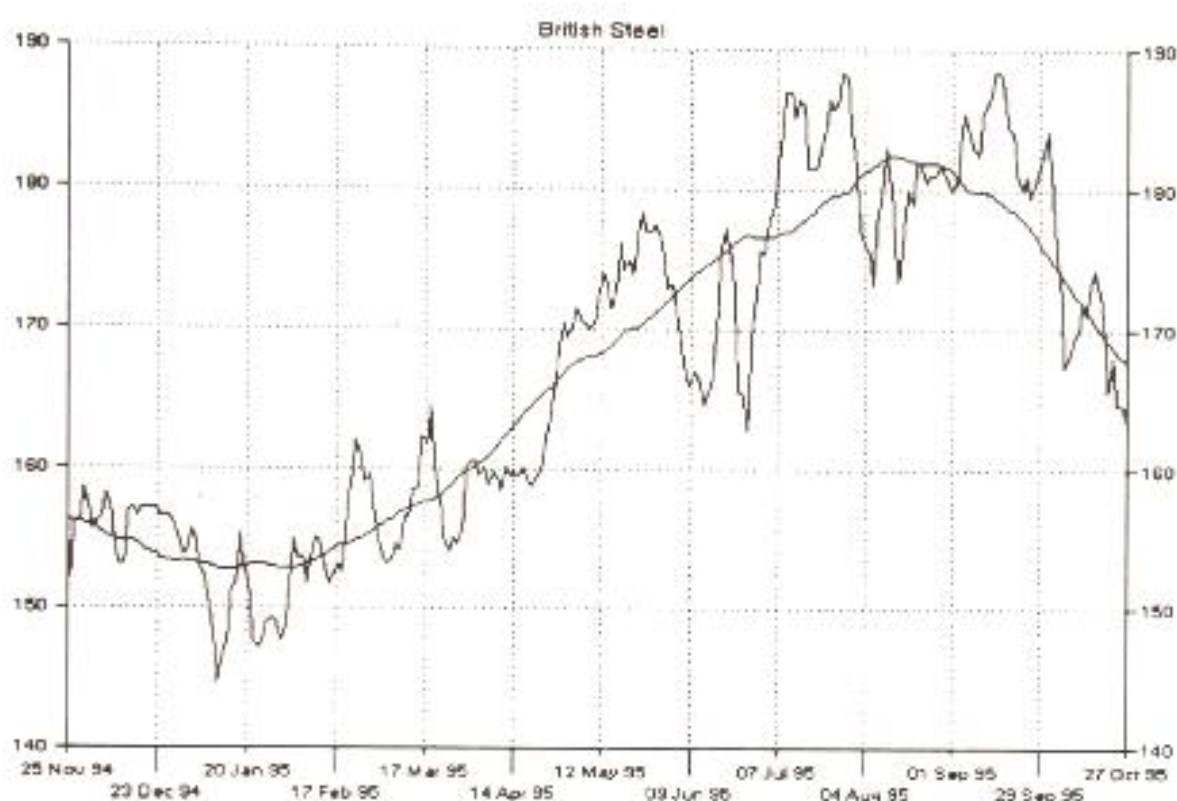


Figure 10.15 Data are now plotted further into the future. We can see that the centred average, representing the trend, maintained the same direction

correct or incorrect easily from historical data by measuring the length of time for which trends maintain the same direction. This can be done by marking the turning points in a plot of a moving average and measuring the distances between successive turns.

Where the majority of these lengths of time are less than half of the number of points used in the moving average, then we are more likely to be incorrect than correct in using the new direction of the moving average as an indication of the current direction of the trend. Thus, using a 51-day average, we run into trouble if many of the turning points are closer together in time than 26 days. This gives us a useful yardstick by which shares can be compared with each other. Some will have a history of more persistent trends, making them good candidates for moving average methods, while others will have many more short-lived trends, making them dangerous to the investor.

From this approach, we can now explain why BPB gave vastly inferior results to those obtained by British Steel, using a 50-day average. An analysis of both histories from the beginning of 1992 to date showed 17 turning points in the 50-day average of BPB. The average time between turning points, i.e. persistence of trends, was 46 days, and seven of these intervals were less than 26 days. On the other hand, British Steel gave only 11 turning points in the same period of time, with an average persistence

of 73 days. Only two of these were of less than 26 days. Thus British Steel trends lasted more than half as long again as BPB trends, with an obvious implication for profitability when averages are used to signal buying points.

11

Relative Strength and Momentum

In *Stocks and Shares Simplified* it was pointed out that a knowledge of general market conditions was essential to the making of buying and selling decisions for specific shares. When the general trend of the market is downwards the reasons for buying a particular share must be overpowering, since sooner or later most shares get caught up in the ebb tide. The performance of a share relative to the market in general is thus an important yardstick. Fortunately we have available to us a simple but powerful means of measuring this relative performance in the Relative Strength Index.

Another useful piece of information about a share is the head of steam that has been built up behind a rise; this is best interpreted by the concept of momentum. There are several indicators which measure momentum, and the Welles Wilder Index is probably the most popular.

RELATIVE STRENGTH INDEX (RSI)

The Relative Strength Index is simple if laborious to calculate. It is simply the ratio of the share price to a broadly based index such as the All Share Index or the FTSE100 Index calculated from day to day. The RSI is then plotted on the same chart as the share price. The actual values for the RSI are unimportant, so that the scale for these can be omitted from the plot. This is not done in the examples here because the RSI has been plotted in a separate box in order to enlarge the trends for easier reading.

As an example to get an idea of the appearance of an RSI, this index is plotted, along with the share price for Boots, from the beginning of 1983 in Figure 11.1. It can be seen that although there are similarities between the RSI in the upper panel and the share price in the lower panel in that some peaks coincide, for the most part the two have a different appearance. Note that the scale used for the vertical axis of the RSI has no significance; it is the shape that we are interested in.

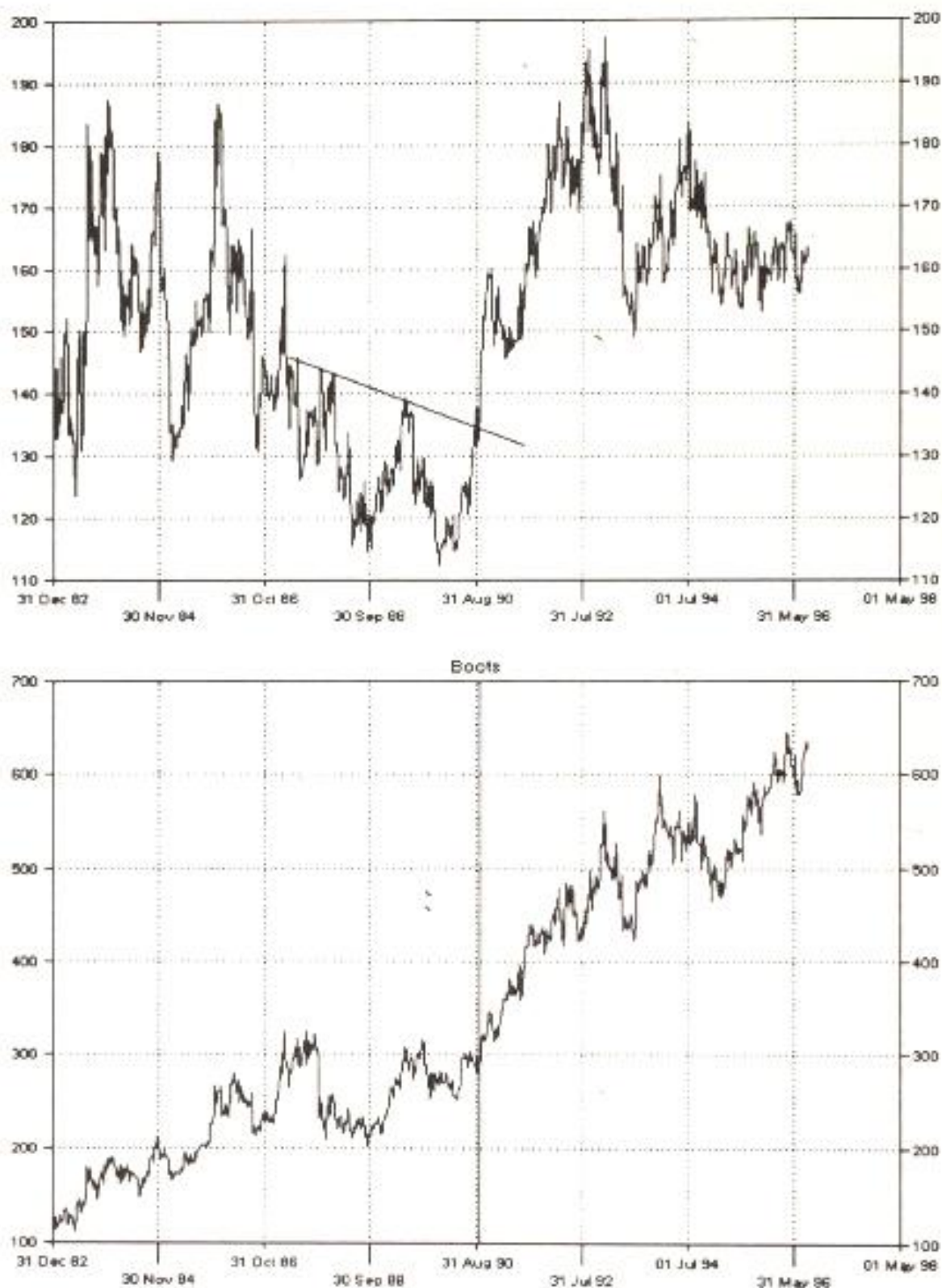


Figure 11.1 The Boots share price (lower panel) with the Relative Strength Index (upper panel). The latter uses the FTSE100 Index as the base

When the RSI is increasing, this means that the share price is outperforming the market, while when it is decreasing, the share price is underperforming the market. Thus in Figure 11.1, prior to mid-1990 the general trend of the RSI is downwards, showing that Boots was underperforming the market. From the low point in mid-1990, the RSI rose rapidly, when Boots greatly outperformed the market. Over the final year, the RSI oscillated within a narrow band, broadly following the market.

While these rises and falls in the share performance are interesting, they are not very helpful in themselves. It is the application of charting techniques, especially the use of trendlines, that makes the RSI a powerful tool for the determination or confirmation of buying and selling points. Such a trendline has been drawn on the RSI in Figure 11.1 to highlight a downtrend that started in early 1987 and continued until October 1990. There are four sharp peaks lying on this line. As with charts of share prices themselves, we can signal the end of such a downtrend by observing the penetration of the trendline as was the case with share prices. It is useful, as with share prices, to avoid false signals by using a 3% penetration as a criterion. This penetration by 3% above the downtrend was achieved on 5th October 1990. This date is shown by the vertical line drawn on the lower share price chart, and corresponds to a share price of 312p.

That this is a very useful buying point for Boots shares can be seen by the fact that the price rose consistently with only minor falls to about 480p over the course of the next 18 months.

It should be noted that it would be difficult to establish this buying point simply from the chart of the share price itself. Although it appears that a resistance line could be drawn at about the 310p level, the peaks that would compose such a line would vary by rather more than 3% around the line, making it a rather questionable resistance.

An example of a rising trend line in an RSI is shown in Figure 11.2 for Anglian Water. The uptrend from March to December 1995 is a very strong trend, since there are six troughs which fall on or very close to it. It can be seen that the trendline is decisively penetrated in January 1996. The RSI had fallen more than 3% below the trendline on 17th January 1996, at which point the share price was 572p. This would therefore give a selling signal for those investors not using the stop loss method. Over the next few days the price fell slightly to 566p, giving the investor confidence that the signal was correct. This confidence seemed to be slightly misplaced when the price rose again within a few days to 590p and even more misplaced when following a further fall the price rose even higher to 612p over the next few weeks. However, a look at the chart for the first half of 1996 shows that the investor would have been happy to be out of the share, since the switchback rise saw rapid swings of nearly 100p in the price.

It is interesting that the straight uptrend in the RSI has been derived from a curved uptrend over the same period of time in the share price. As we saw in Chapter 8, penetration of curved trends is slightly more

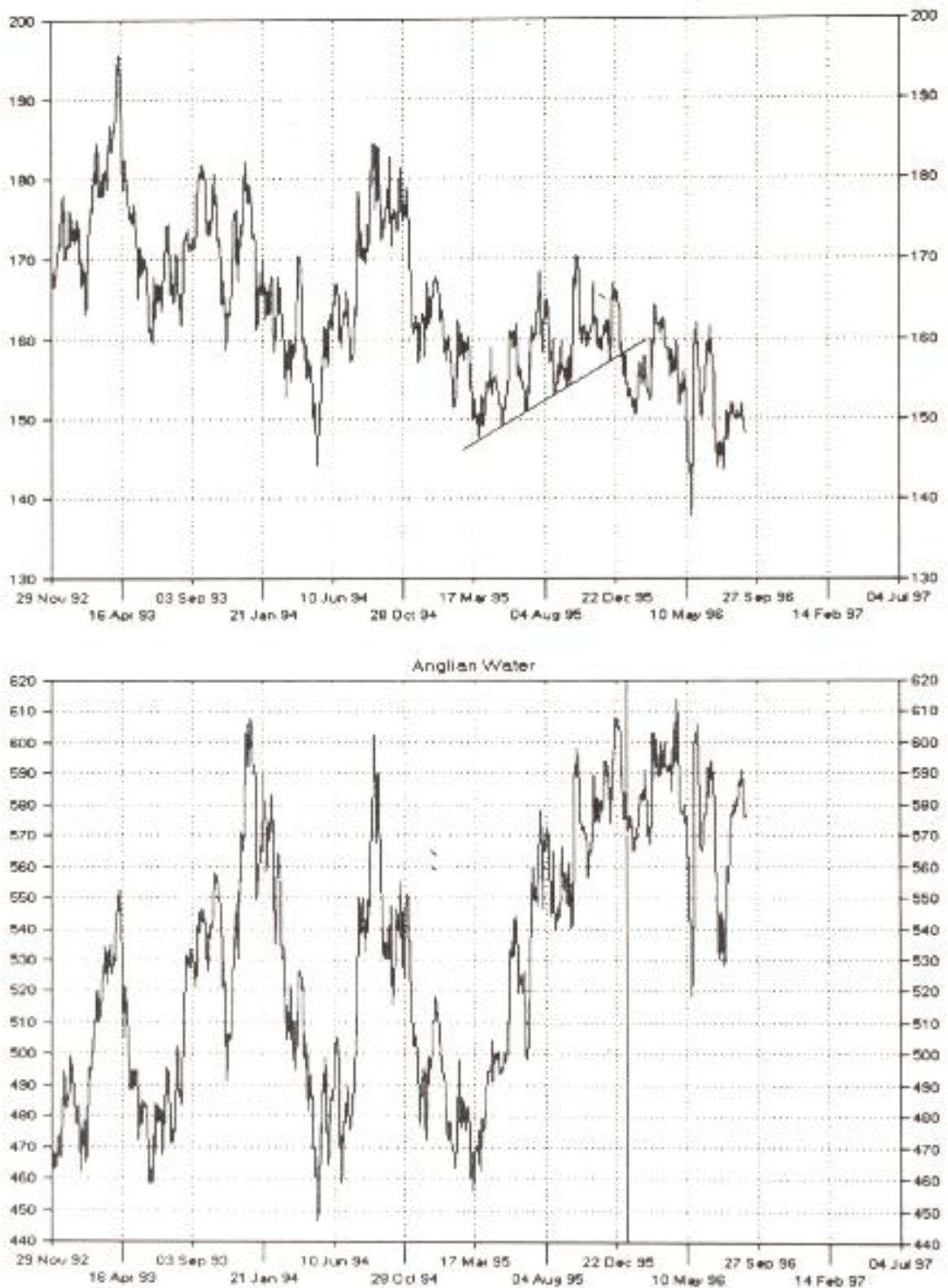


Figure 11.2 The Anglian Water share price (lower panel) with the Relative Strength Index (upper panel). The latter uses the FTSE100 Index as the base

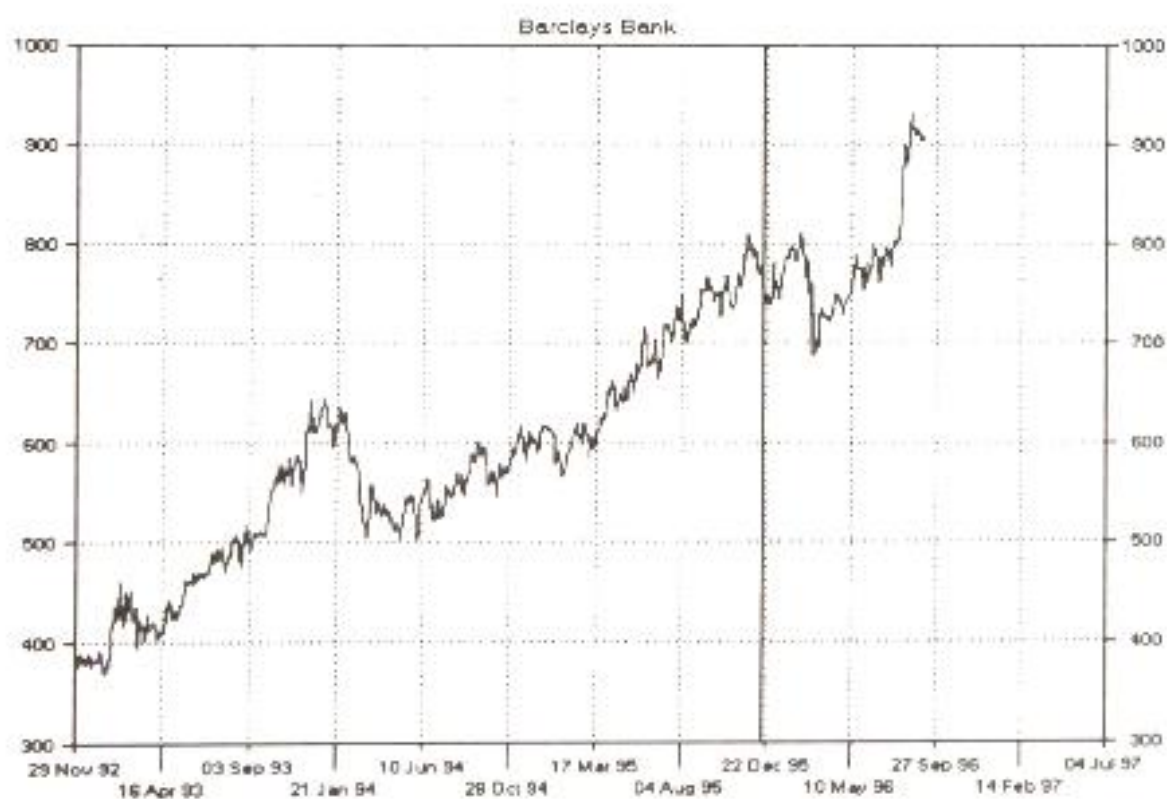
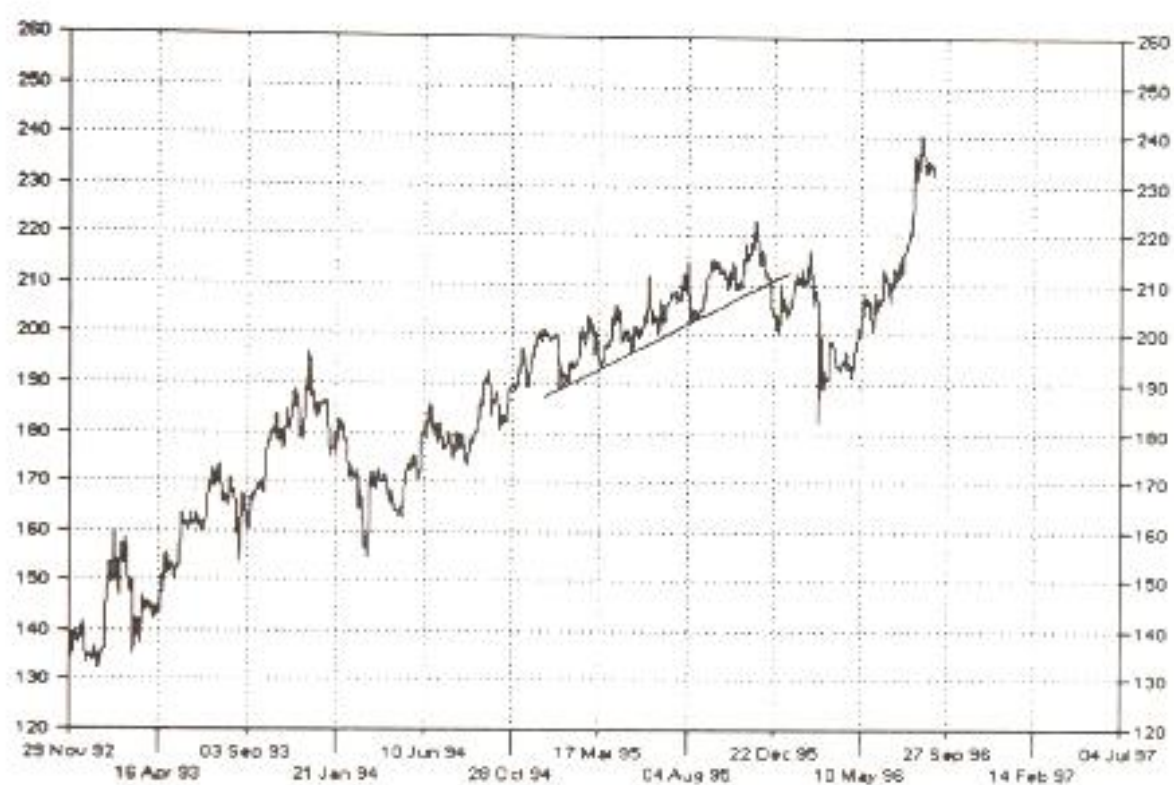


Figure 11.3 The Barclays share price (lower panel) with the Relative Strength Index (upper panel). The latter uses the FTSE100 Index as the base

subjective, since the curve has to be extrapolated, whereas penetration of a straight trendline is a much more positive event.

Barclays Bank (Figure 11.3) is another example of a curved uptrend in the share price being converted into a straight trendline by the RSI. The uptrend in the RSI has some six troughs lying on it, and was decisively penetrated at the end of December 1995. The share price at the time was 743p, and although it then recovered back to just over 800p, a larger fall occurred to 695p by March 1996. An investor who got out at 743p could therefore have bought back in at a much lower price, then enjoying a rise to above 900p in a very short space of time.

These few examples should serve to show the potential for the RSI method. Just as with the other indicators discussed in this book, there will be failures as well as successes, but the RSI has stood the test of time and is a useful addition to the range of indicators available to the investor.

THE WELLES WILDER INDEX (WWI)

This is one of several indicators which measure the momentum of a share price movement. As was shown in Chapter 2 where its calculation was outlined, it results in a value which always lies between zero and 100. The general consensus is that when the value falls below 30, the share in question is oversold, and can be bought, while if the value rises above 70 the share is overbought and should therefore be sold. Although any period can be used as the basis of the calculation, the accepted one is a 14-day period, and all the examples that follow use this value. A few examples here will serve to show circumstances in which the indicator has turned out to be useful.

The chart of the BAT share price with the 14-day WWI is shown in Figure 11.4. It can be seen that there is reasonable correlation between peaks and troughs in the share price and the points at which the WWI crosses the 70 and 30 levels.

There are several methods of using the WWI to generate buying and selling signals. Some investors use the method of buying or selling on an immediate cross of these levels. Others wait until the WWI has troughed if falling below 30 or peaked if rising above 70. Yet others wait for a recrossing of the level in the opposite direction before taking action.

The result of applying this first method, i.e. buying or selling on an initial crossing of the 30 and 70 lines, to BAT shares is shown in Figure 11.5. The points at which the WWI crosses the 30 or 70 levels are marked by vertical lines so that the corresponding point on the share price chart can be seen. Now that the chart scale has been enlarged, a very important property of the WWI can now be seen: the buying and selling signals usually occur before the turning point in the share price. This is quite marked for the trough in the BAT price that occurred at the end of May 1994. The buying

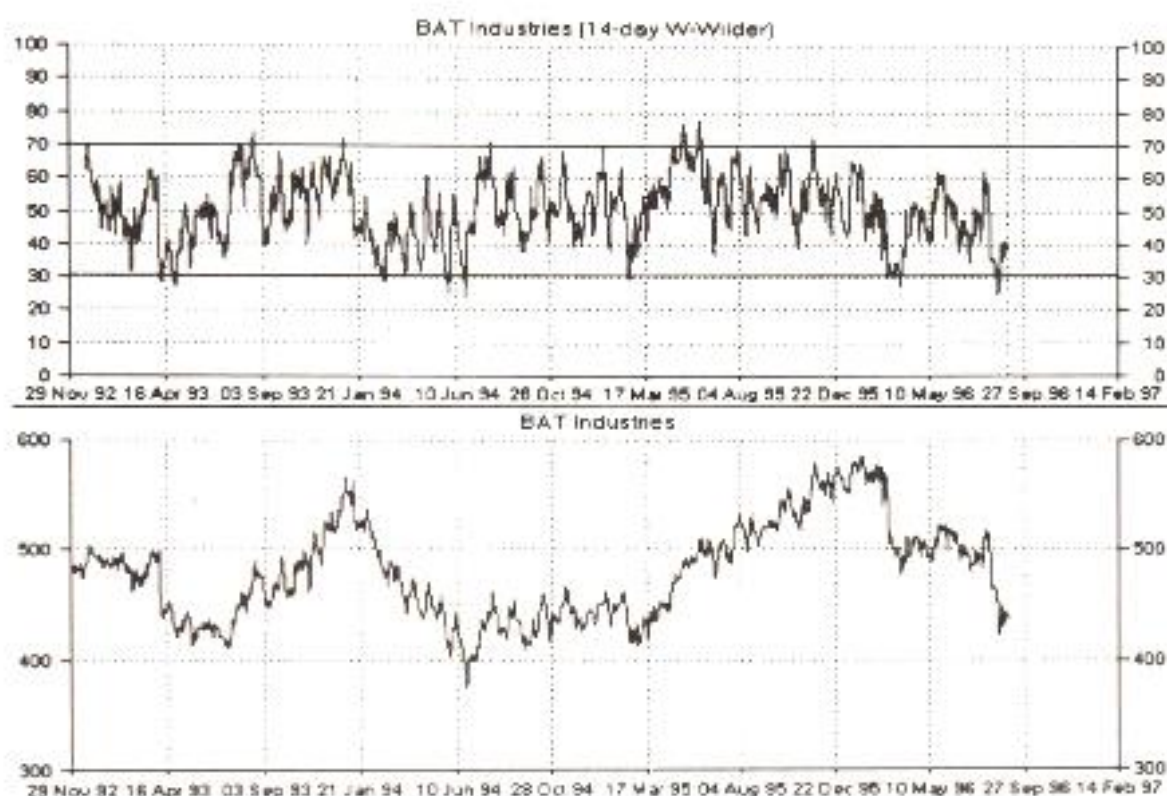


Figure 11.4 The BAT share price (lower panel) with the 14-day Welles Wilder Index (upper panel)

signal given by a crossing of the 30 line by the WWI occurred on 27th May, when the price was 410p. The actual trough in the share price occurred on 1st June 1994 when the price was 402p. The dates and corresponding share prices for the two complete buying and selling operations shown by the vertical lines in Figure 11.5 are listed in Table 11.1.

The average gain from the two transactions is 15.1%. This can be compared with the gain made by using the alternative method of buying and selling when the price crosses back up through the 30 level and back down through the 70 level. These points are shown in the chart in Figure 11.6. The dates and prices for these buying and selling operations are shown in Table 11.2. Now the average gain from the two transactions is 10.2%, an improvement over the first method. This is not always the case, and in practice there is not much difference between the two methods across a range of shares and a long timescale.

As with all other indicators discussed in this book, there are many occasions on which the Welles Wilder Index gives a false signal. British Steel (Figure 11.7) is a case in point. There are five points shown in the figure in which the WWI falls below 30% to indicate a buying opportunity. The first was on 10th October 1995, with the share price at 167.25p, and the next was on 3rd November 1995, with the price at 153p. Thus the price fell between the first and second signals. The lowest point reached by the

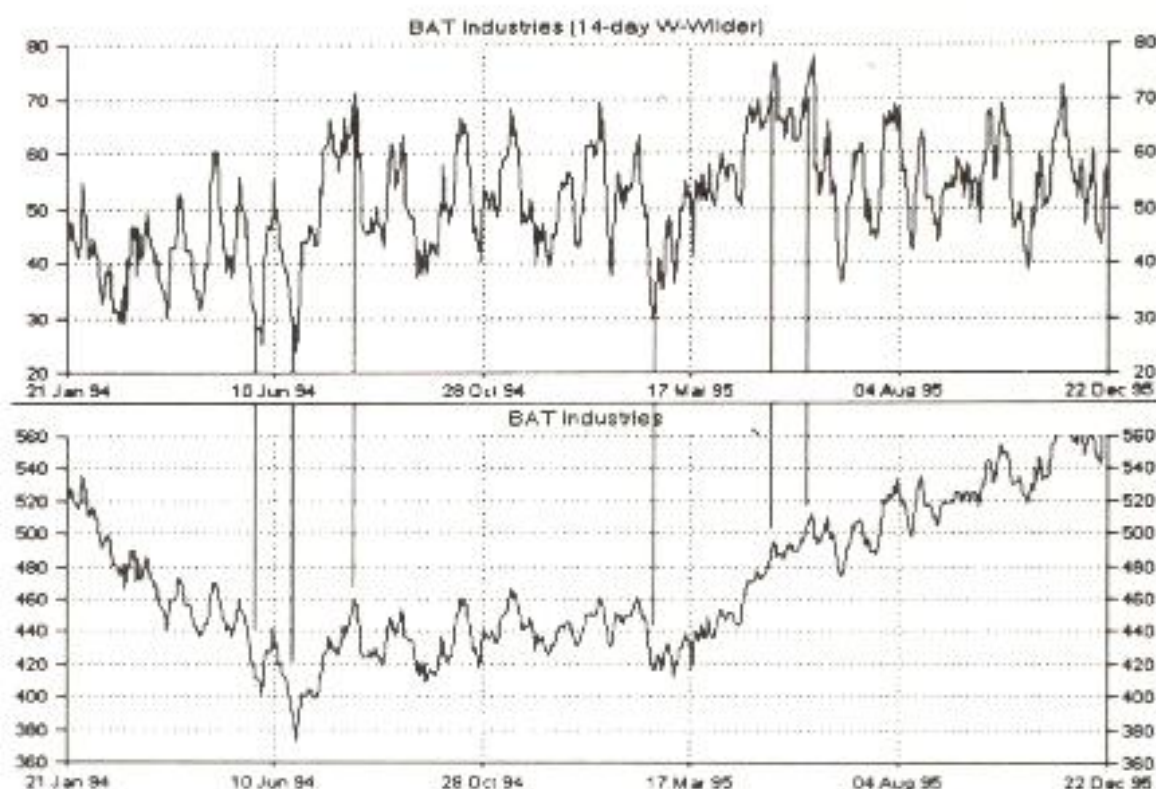


Figure 11.5 The BAT share price (lower panel) with the 14-day Welles Wilder Index (upper panel). Crossing points of the 30 and 70 levels are indicated by vertical lines

Table 11.1 Dates and prices for the buying and selling operations in BAT Industries as signalled by the WW Index crossing the 30 and 70 levels

Date	Buy at	Date	Sell at	% Gain
27/05/94	410	02/08/94	460	12.1
22/02/95	414	11/05/95	489	18.1

price was 150p on 18th December 1995, so that these two signals were very premature and would get the investor in above the bottom price. Since an investor would be acting on the first of these, there would have been a 10% loss by 18th December.

The selling signal came with a crossing of the 70% line on 26th February 1996, with the price at 182.5p. Again, this was premature, since the price reached 200p within a few weeks, but it did provide a useful profit for investors who bought around the 155p level the previous autumn.

The next three buying signals occurred on 11th May (at 184.5p), 21st May (176p) and 31st May (170p). Investors acting on the first of these would have been unhappy to see the price fall to its low of 162p on 27th June, i.e. a loss of 12.2%, before making a recovery to 190p.

It is not only with buying signals that the indicator can go wrong. The case of Zeneca is a spectacular example of multiple erroneous selling

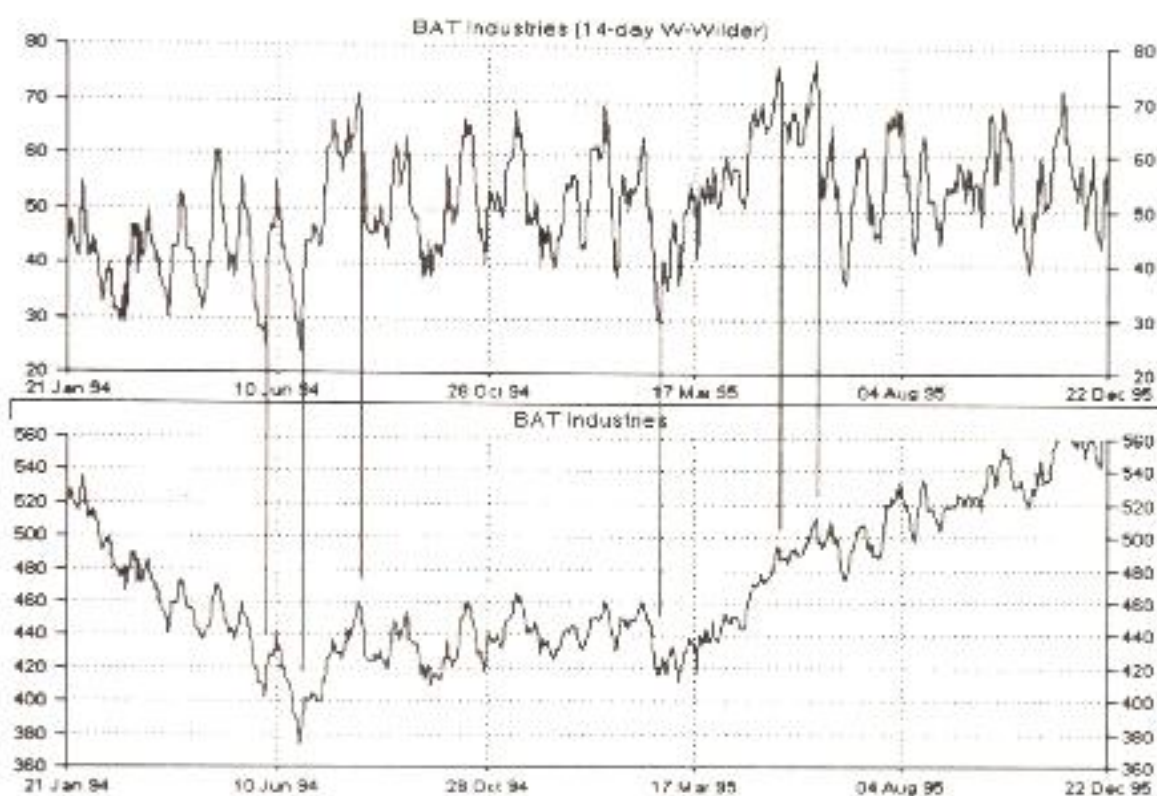


Figure 11.6 The BAT share price (lower panel) with the 14-day Welles Wilder Index (upper panel). Recrossing points of the 30 and 70 levels are indicated by vertical lines

Table 11.2 Dates and prices for the buying and selling operations in BAT Industries as signalled by the WW Index recrossing the 30 and 70 levels

Date	Buy at	Date	Sell at	% Gain
02/06/94	419	04/08/94	446	6.4
23/02/95	426	16/05/95	486	14.1

signals. In the chart shown in Figure 11.8, it can be seen that the share enjoyed a consistent rise from September 1993 to September 1996. An investor would not be pleased to be given selling signals when invested in this share. Nevertheless, the WWI gave no fewer than 10 such signals, starting with the first in July 1994 with the price at 738p. Successive signals were given when the price was 795p, 887p, 931p, 964p, 1081p, 1239p, 1402p and 1464p. The latest was on 19th August 1996 with the price at 1490p. Thus, not only were these signals false, but each occurred at a higher price than the previous one. The only one out of all of these signals which appears to have any justification in terms of a significant short term fall in share price is the one in November 1995 with the price at 1239p. The price rose from this point to 1322p before dipping again to 1224p. Even so, the investor selling at that point would still have seen a 100p rise over the next month before the minor fall.

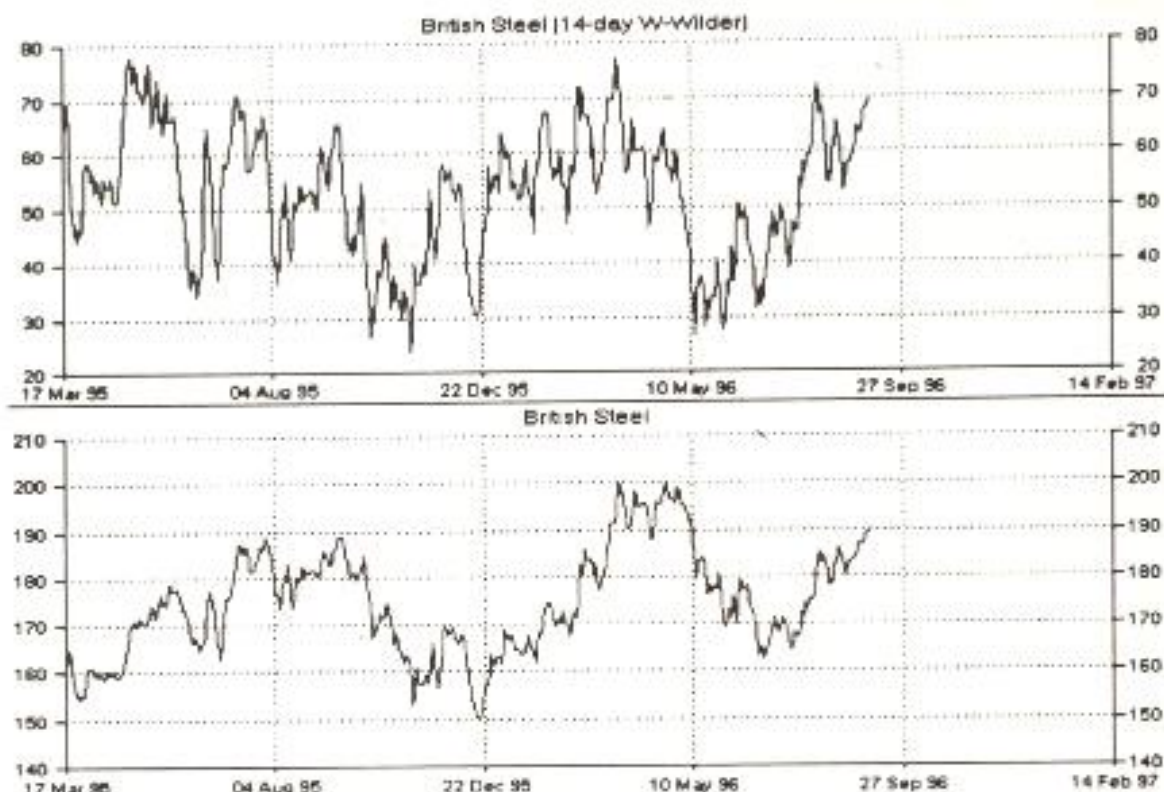


Figure 11.7 The British Steel share price (lower panel) with the 14-day Welles Wilder Index (upper panel)

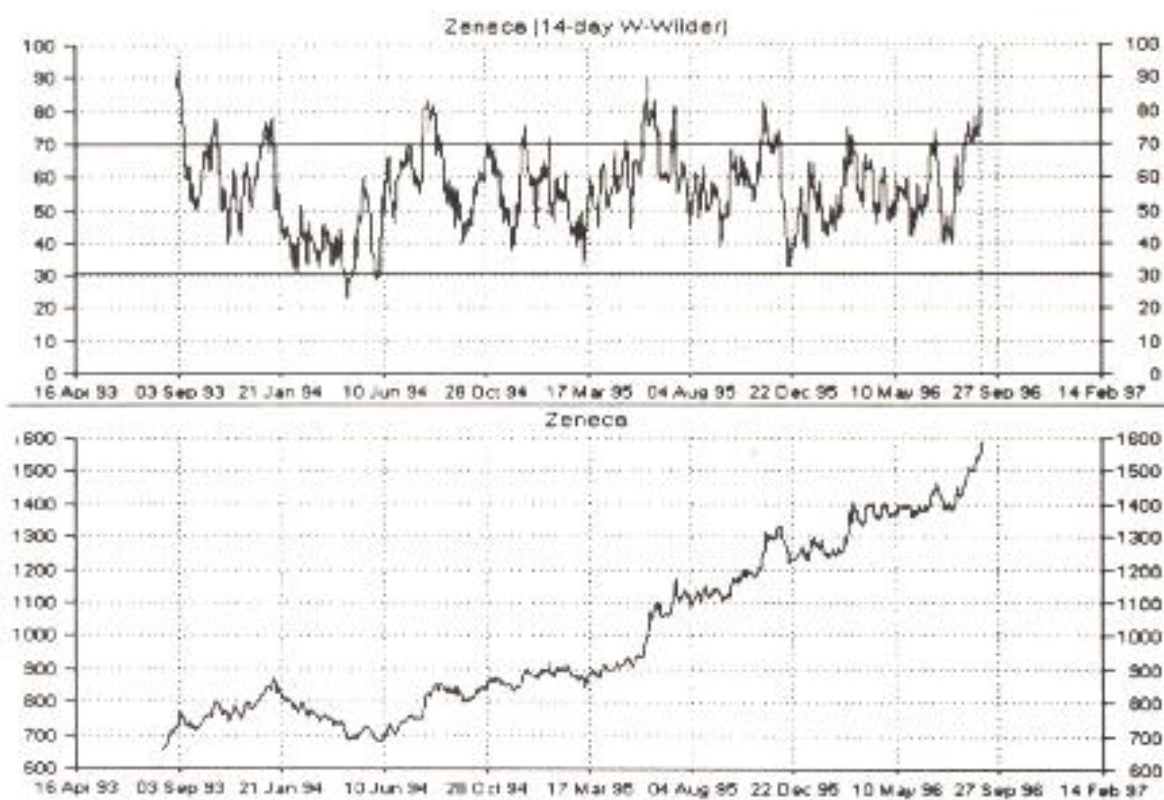


Figure 11.8 The Zeneca share price (lower panel) with the 14-day Welles Wilder Index (upper panel)

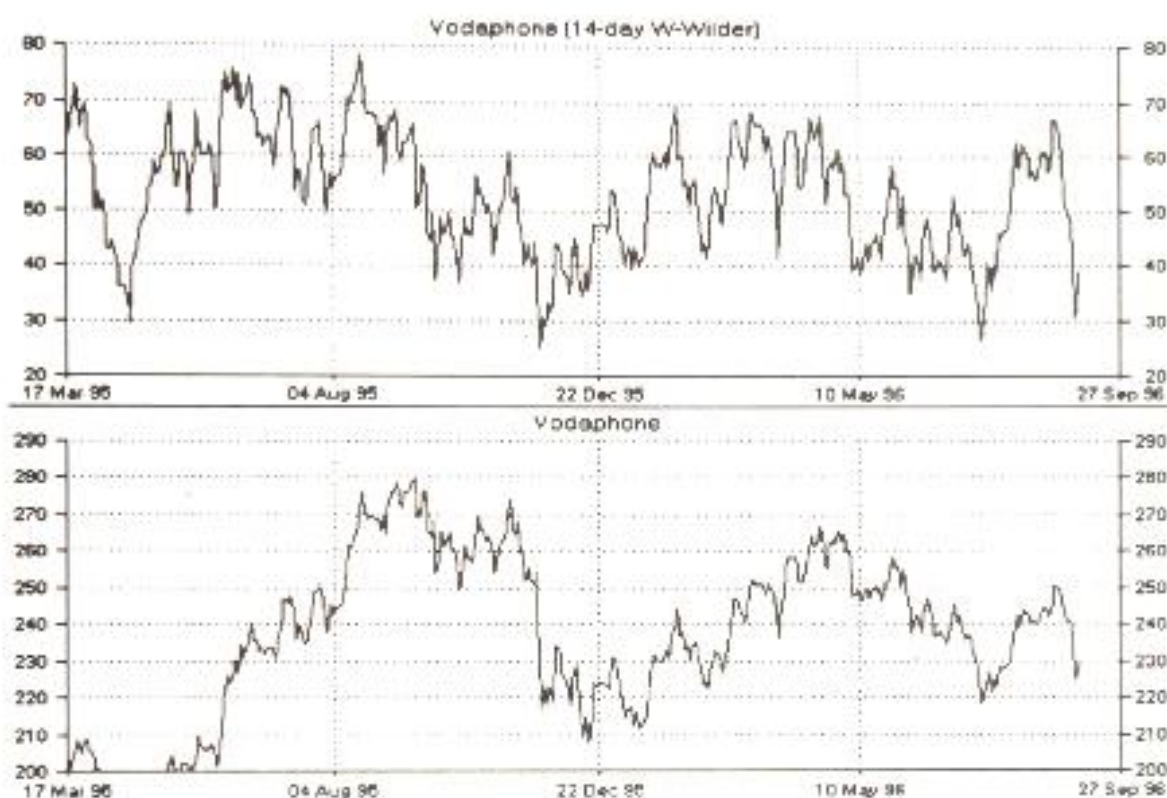


Figure 11.9 The Vodafone share price (lower panel) with the 14-day Welles Wilder Index (upper panel). There is no sell signal given for the top in April 1996

It sometimes happens that the WWI does not give a signal even though there has been a reversal of the price. An example is shown for Vodafone in Figure 11.9. From the low point in December 1995, the price rose via several short term cycles to reach a peak of 266.5p. However, the WWI did not breach the 70% line at around this time. An investor relying on the WWI to get him out of the share would see much of the profit slip away again, since the price fell back to 219p within a few months.

It is of interest to see how the WWI can deal with rapidly moving situations such as the earthquake formation given as an example previously in Chapter 9. This is shown for P&O in Figure 11.10. It would be expected that there would be a difficulty in dealing with such a fast moving change in share price. In this particular example, the earthquake commenced on 12th September 1995, with the price at 546p, and eventually the lowest price of 462p was reached on 11th October.

The WWI actually gave a buy signal on 13th September, showing that at that point the share was oversold. The price then was already on its way down to its low point. The investor buying simply on a fall of the WWI below 30% would thus come to grief. The damage would be somewhat less for those investors who buy on a recrossing of the 30% line, since by the time the WWI recrossed, the price was already much further down the landslide.

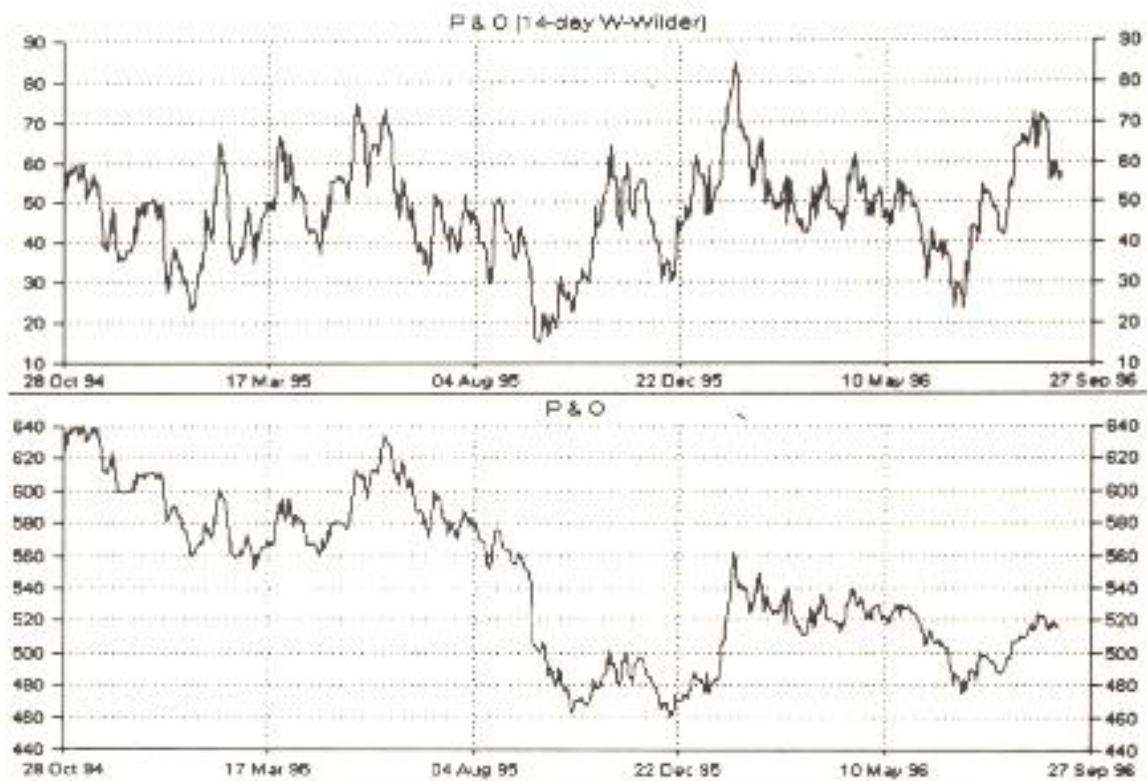


Figure 11.10 The P&O share price (lower panel) with the 14-day Welles Wilder Index (upper panel). As expected, the Welles Wilder Index cannot deal with an earthquake formation in the share price

The examples presented here serve to show the usefulness of the Welles Wilder Index in giving advance warning of the possibility of a trough or peak in the share price. They have shown that it can be dangerous to act solely when the WWI crosses the buying or selling levels of 30% and 70%. Much more success can be obtained with the WWI if, instead of buying or selling once the indicator crosses the 30% or 70% levels, the investor waits for the succeeding trough or peak before taking action.

The Rise–Fall Indicator

I first wrote about this indicator in *Stocks and Shares Simplified*, where it was shown to be excellent for getting investors in and out of shares close to the major troughs and peaks. It has been left out of later books for one reason only, and that is because of the great difficulty in programming it into a computer so as to generate the type of automatic buy and sell signals which are so readily produced by moving averages and other numerical indicators such as the Welles Wilder Index. The Rise–Fall Indicator (RFI) depends upon the breaking of trendlines, and therefore is entirely appropriate to a book such as this which is devoted to charting techniques.

The way in which the RFI is produced was discussed in Chapter 2. The previous value of the indicator is increased by one if the share price rises, is decreased by one if the share price falls, and stays unchanged if the share price is unchanged. The initial starting value for the indicator is set at some round number such as 100. From such a start it is extremely unlikely that the indicator will fall to anything approaching zero since to do this the share price would have to suffer 100 more falls than rises in the period in question. Even if it did fall to zero this would not affect the interpretation of the indicator.

Because the RFI is only concerned with whether a share price has fallen, risen or stayed still, and not with the actual price movement itself, it can be considered to be a trend indicator. While the trend sequence is maintained, for example rise, rise, fall, rise, rise, fall, the pattern of the indicator will continue to be repeated. When the pattern changes, as shown by the breaking of a trendline, then the trend has been broken, which usually implies a change in direction of the share price.

The overall impression of the RFI can be obtained from Figure 12.1 where the FTSE100 Index values and the indicator are shown. It can be seen that, in general, major troughs and peaks in the share price are accompanied by troughs and peaks in the indicator, but minor troughs and peaks may not be. The scale of the chart is such that the detail of the RFI cannot be seen.

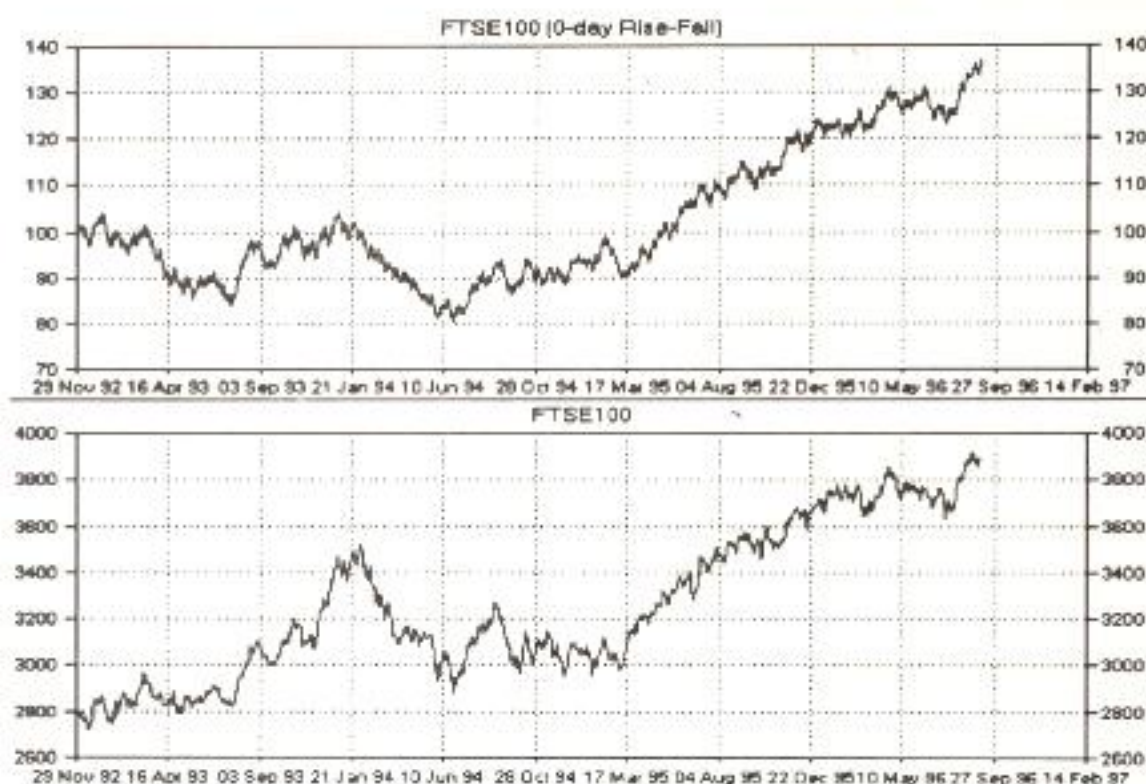


Figure 12.1 The FTSE100 Index (lower panel) with the RFI (upper panel)

Much more detail can be seen in the enlarged section of this chart, as shown in Figure 12.2. The RFI can now be seen to consist of many more peaks and troughs than the share price itself. Because of this larger number of peaks and troughs, the simple approach to drawing a trendline, i.e. that two troughs or two peaks are sufficient to define it, would lead to a large number of trendlines and a correspondingly large number of false buying and selling signals. With the RFI, it is essential that a minimum of three peaks or three troughs must lie on the trendline before it becomes valid. This reduces the number of buying and selling signals enormously.

Figure 12.2 is useful in showing how the indicator can be used to signal the beginning of a new trend. A downtrend line can be drawn in July 1993. This line is broken by the indicator on the 23rd, with the Index at this point being 2827.7. Note how successful the indicator was in signalling a change in direction with the Index only marginally above the lowest point reached a few days earlier. The FTSE100 Index climbed considerably higher from this point, reaching 3520.3 by 2nd February 1994 before falling back again.

The next big rise in the Index occurred from March 1995, and it is of interest to see how well the RFI performed once again in signalling the start of this new uptrend. This is shown in Figure 12.3. In this case the trend is a horizontal channel, one unit in depth, throughout March 1995, and has five troughs and four peaks lying on its boundaries. The RFI broke out of this channel on 23rd March, with the Index at 3135. While this is a

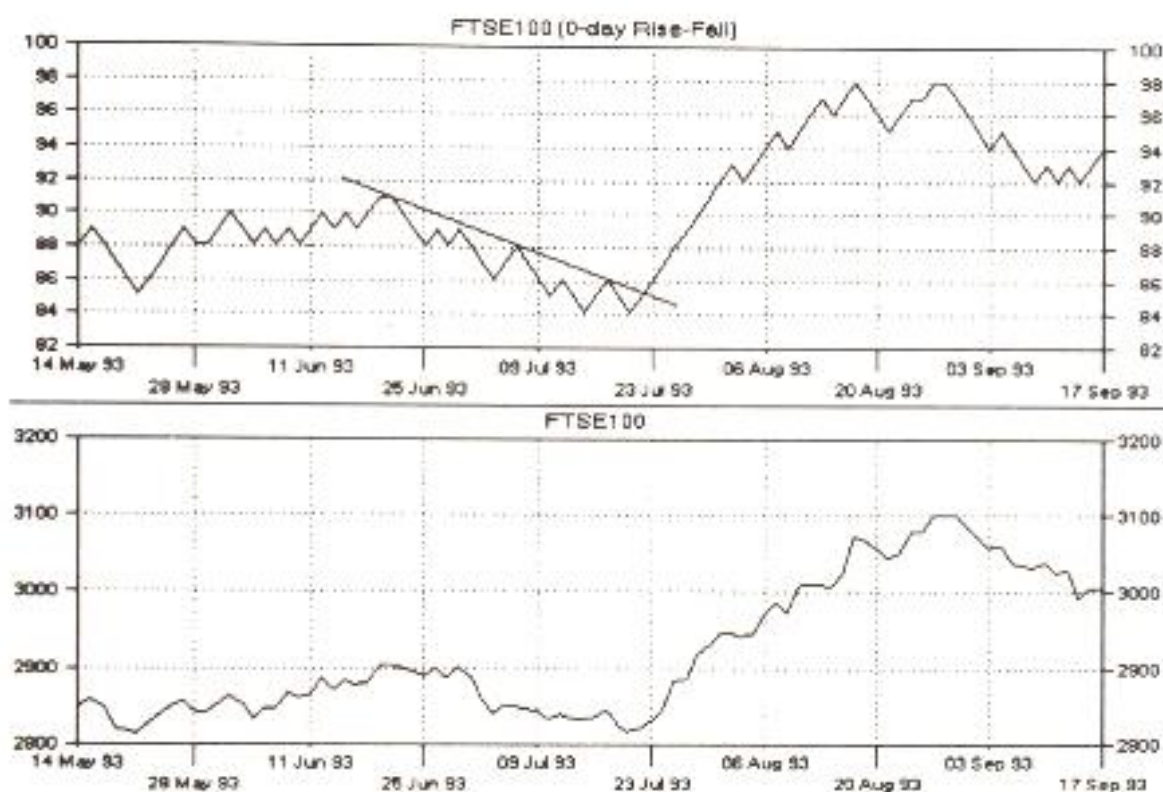


Figure 12.2 The breaking of a downtrend in the RFI on 23rd July 1993 signals the start of a new uptrend in the FTSE100 Index

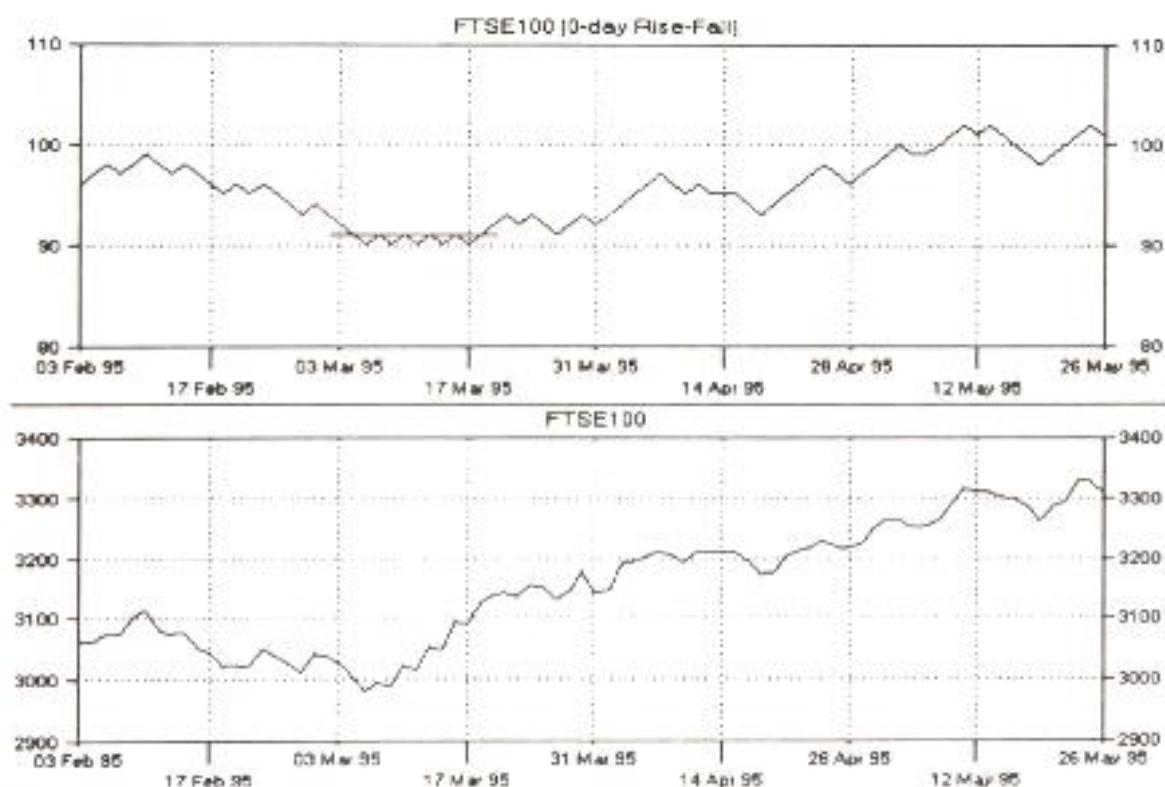


Figure 12.3 Another uptrend in the FTSE100 Index is signalled by the crossing of the horizontal channel in the RFI (upper panel) on 23rd March 1995

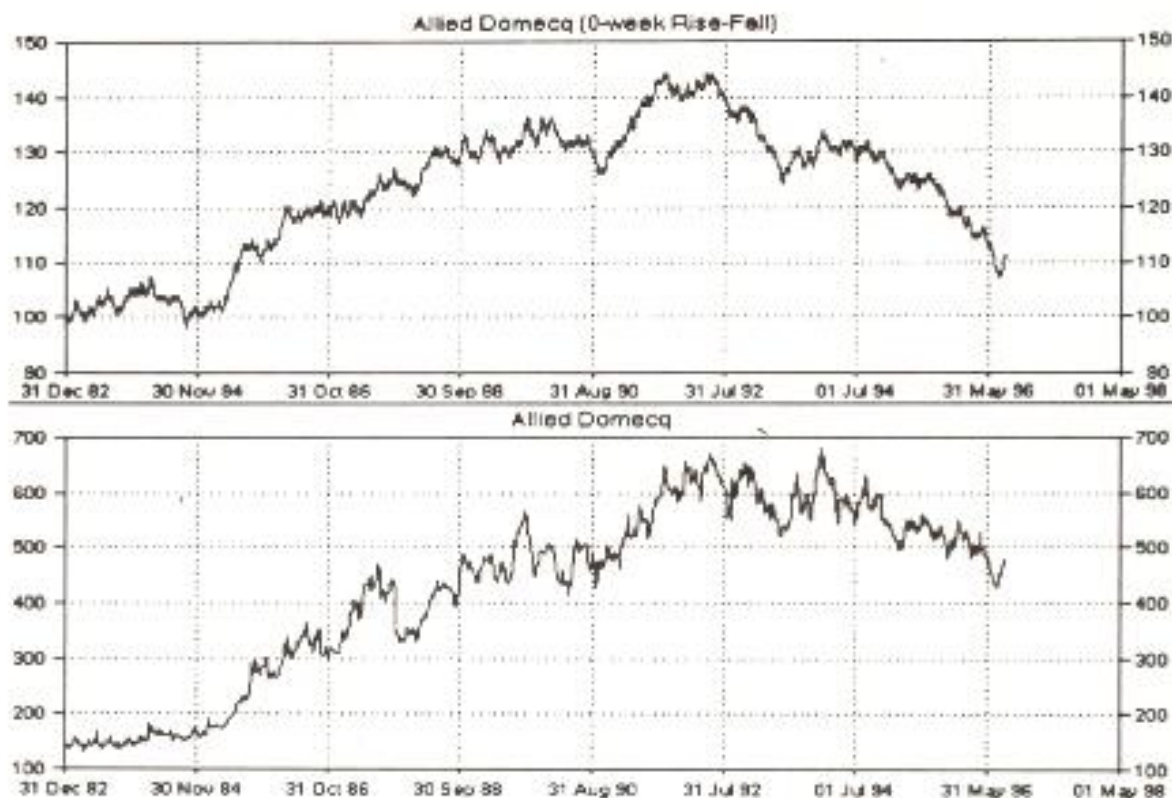


Figure 12.4 The Allied Domecq share price (lower panel) with the RFI (upper panel)

little way above the low point in the Index earlier in March, it was still a good time at which to make investments, since the Index rose consistently over the next year to reach just short of 3800.

The general picture of the RFI for Allied Domecq is shown in Figure 12.4. Here weekly data have been used in order to present a longer time-scale. Again, most of the major peaks and troughs in the share price have a counterpart in the RFI. Note that the fall of over 100p during the crash of October 1987 shows no significant reaction in the RFI. That is because the RFI can only change by one unit whatever the scale of the rise or fall in the share price in one day or, in this case, one week.

Figure 12.5 shows the portion of the chart for 1990 to 1991. The down-trend line, when broken in October 1990, would have got the investor into the share at 464p. Although this is some 40p above the low point of 426p which occurred a few weeks earlier, i.e. about 10% off the bottom, the share then made excellent progress over the next two years to take it to the mid-600p level for a 40% gain over the period.

Figure 12.6 shows how the RFI would have got the investor out of Allied Domecq following this investment in October 1990. The uptrend line, with many points lying on it, was broken in September 1991, with the share price at 610p. Thus, the investor, using just the RFI for this one-year ride on Allied Domecq, would have seen a gain of 31% in just under one year. Although the share price subsequently rose to the mid-600p level,

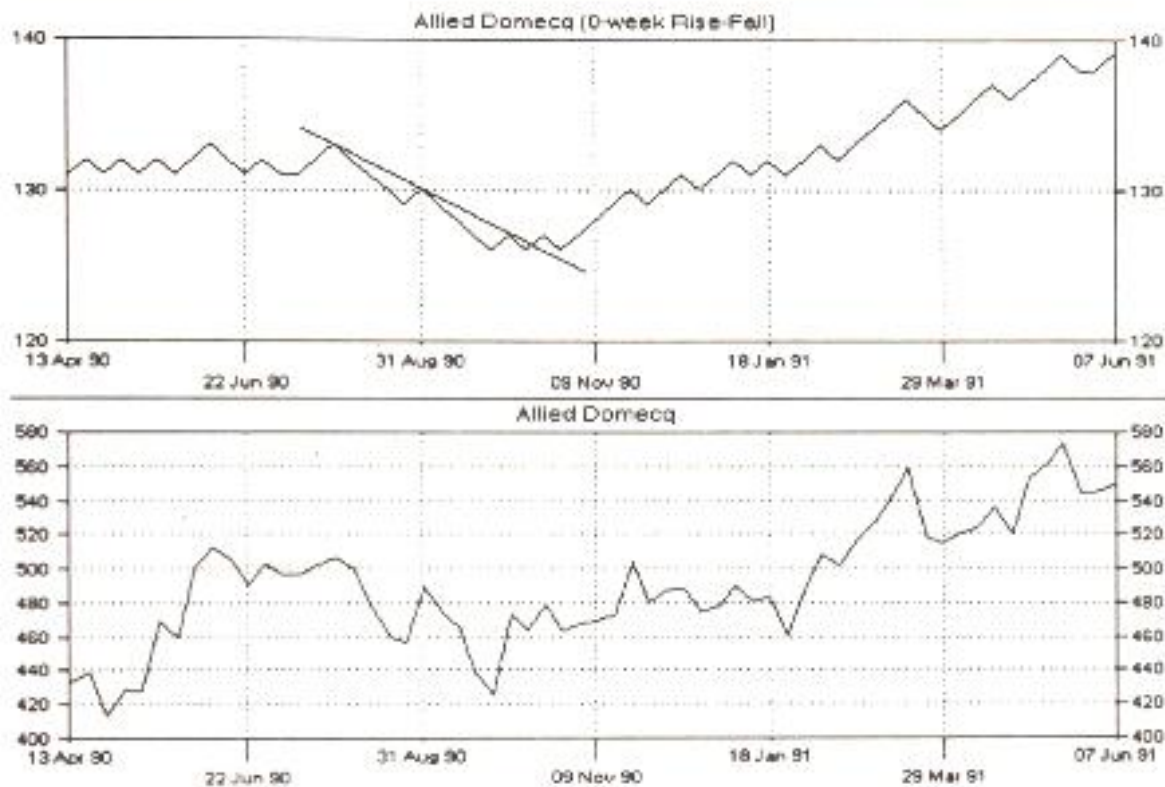


Figure 12.5 The breaking of the downtrend line in October 1990 gave a signal to enter the share at a price of 464p. A good rise to over 600p followed

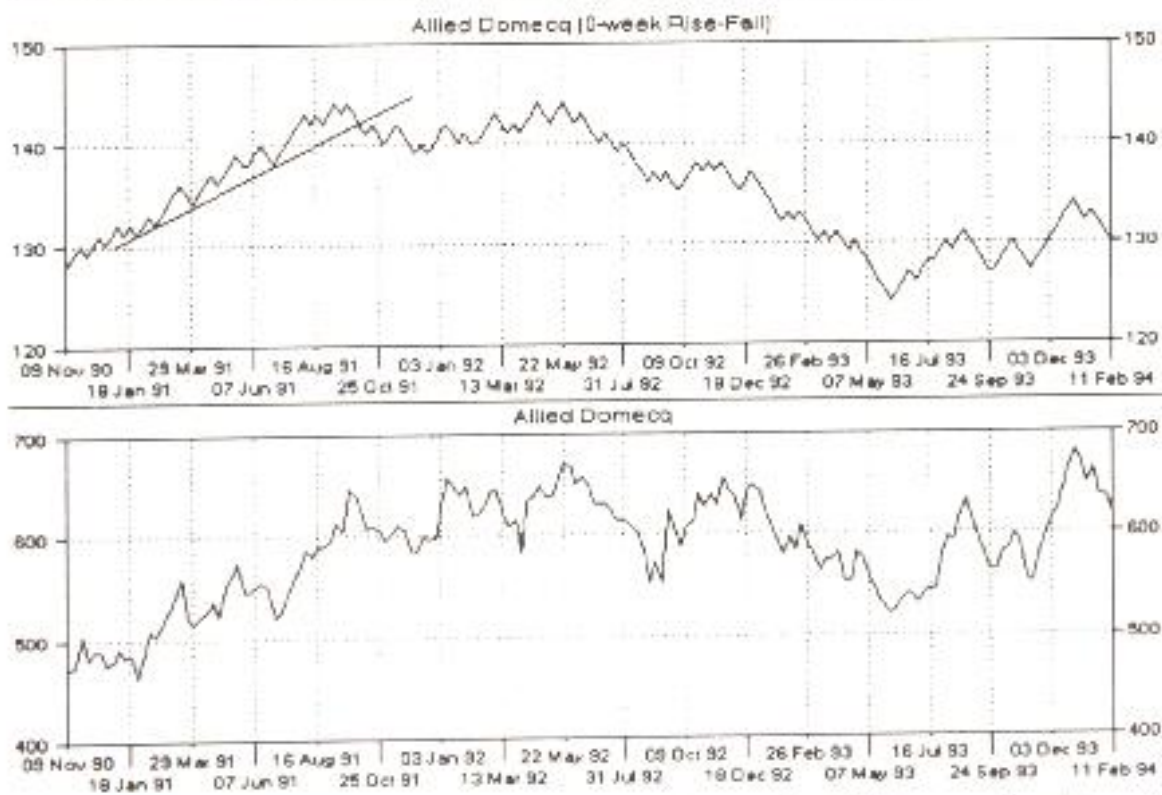


Figure 12.6 The breaking of the uptrend line in September 1991 gave a signal to exit the share at a price of 610p. This kept the investor out of a whole year of sideways movement. The breaking of the downtrend line in July 1993 gave a signal to re-enter the share at a price of 545p

this took until 22nd May 1992. An investor using a stop loss method would probably have sold at about 620p, so that staying in the share once the RFI signalled an exit would have netted only an additional 2.5% over the following eight months. This would hardly be a very profitable use of capital at a time when there would be many better opportunities in other shares.

Also shown in Figure 12.6 is the breaking of the subsequent downtrend in the RFI, giving the investor the opportunity to re-enter the share in July 1993 at a price of around 545p. From this point the price rose quite rapidly to 685p for a very useful gain, but a glance at the chart in Figure 12.4 shows that this was the last real opportunity in Allied Domecq with the share entering a long downtrend from its subsequent peak.

The case of British Steel was discussed in the last chapter as an example where the Welles Wilder Index gave a false buying signal, getting the investor involved at a time when the share price continued to fall. The indicator gave false buying signals on 10th October 1995 at 167.5p and on 3rd November 1995 at 153p. The RFI for this share is shown in Figure 12.7. The downtrend shown in the RFI in October/November 1995 was broken in early November with the price at 157p. Thus this indicator avoids giving a buying signal too early as was the case with the Welles Wilder Index.

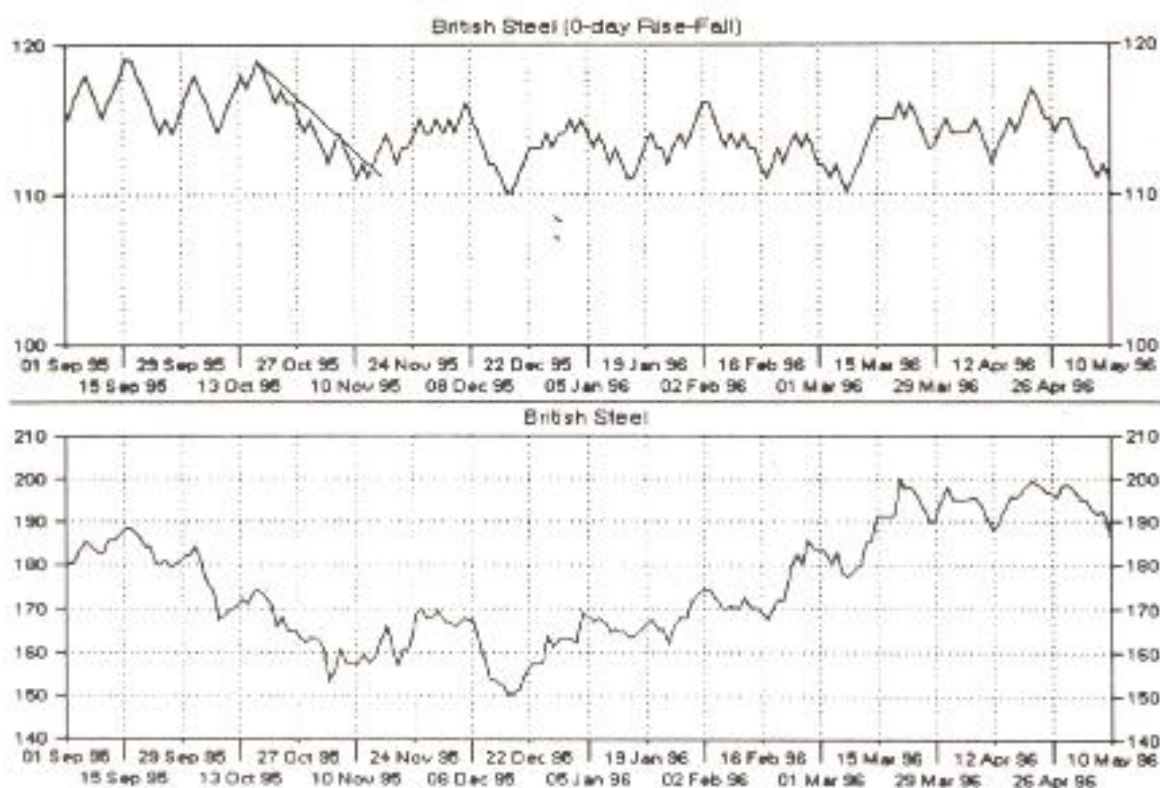


Figure 12.7 The breaking of the downtrend line in the RFI in November 1995 gave a buying signal for British Steel

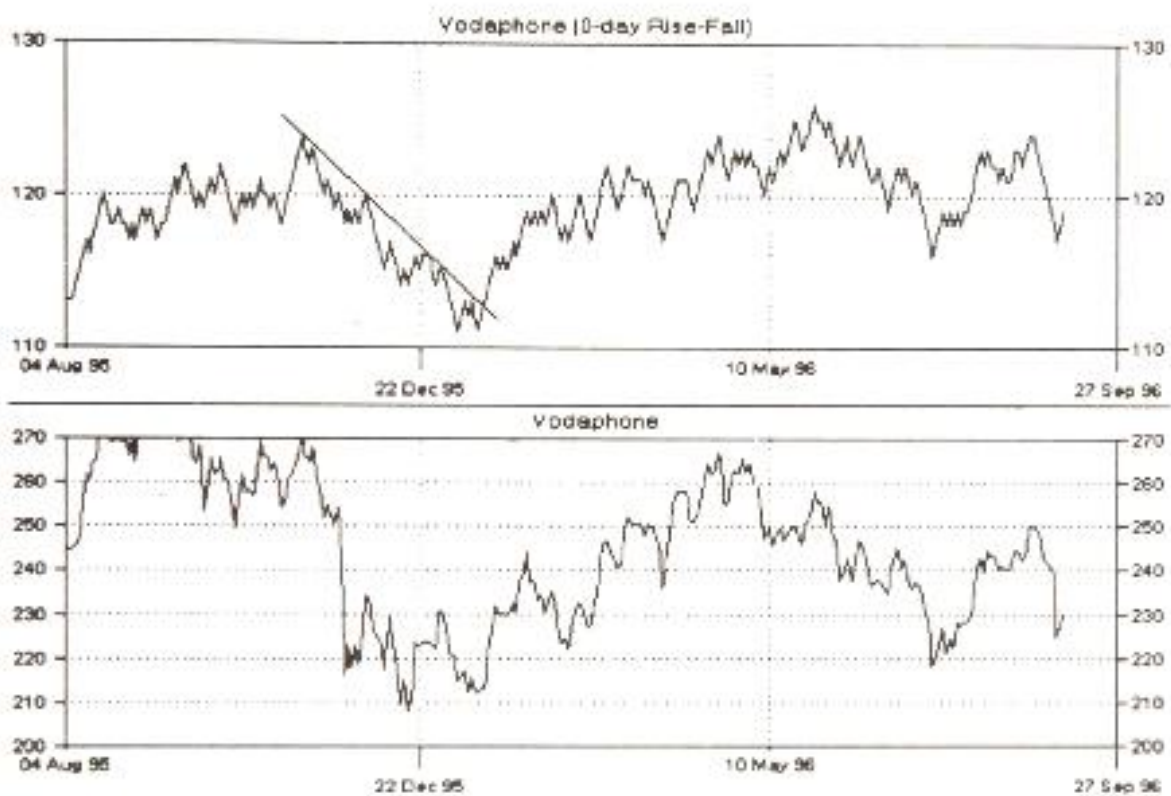


Figure 12.8 The Vodafone share price. The downtrend in the RFI was broken in January 1996

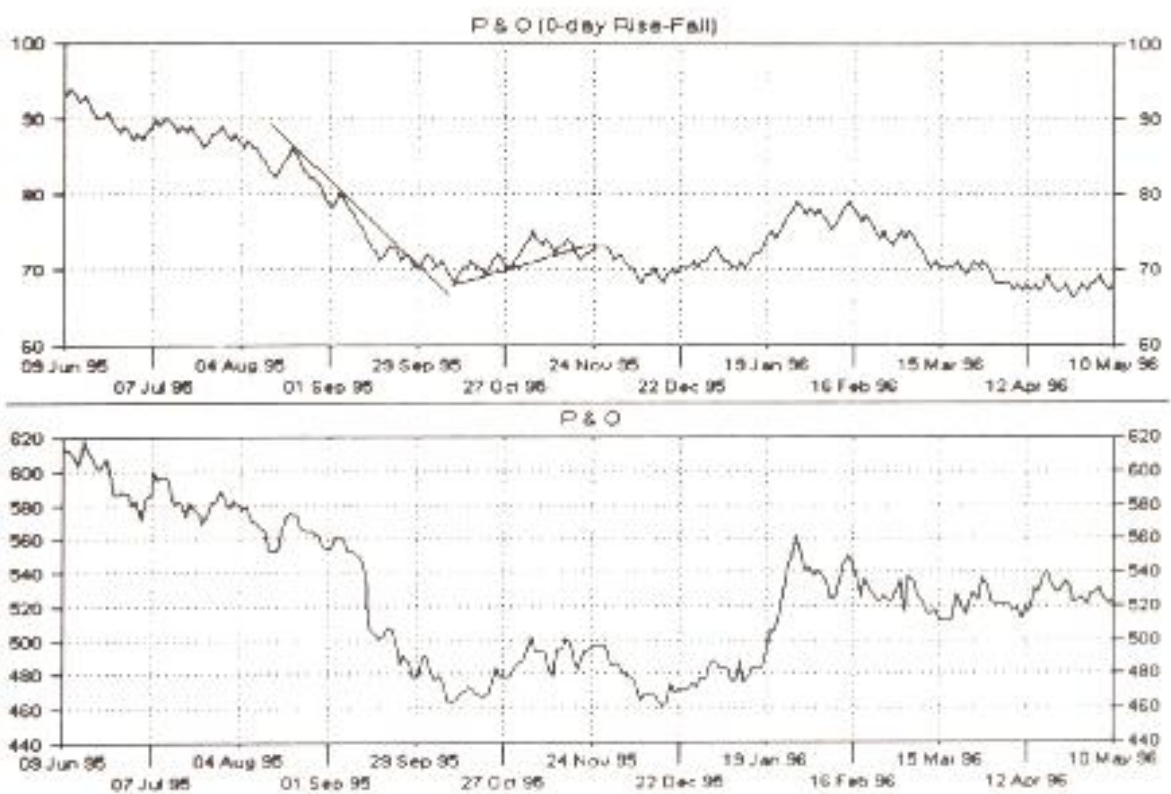


Figure 12.9 The earthquake formation in the P&O share price

Vodafone (Figure 12.8) is another share in which the breaking of a downtrend by the RFI gave a good buying signal. There are four peaks touching the downtrend line shown in Figure 12.8, and the RFI broke up through this line on 15th January 1996 with the share price at 211.5p. This was the start of a useful rise in the share price, which reached 265.5p by 30th April 1996 for a 25% gain in just over three months.

As a final example, we showed in Chapter 11 how the earthquake formation in the P&O share price caused a difficulty with other indicators due to the rapid change in the share price. In Figure 12.9 is shown the RFI for this period of time. In this case the downtrend was broken on 29th September 1995 with the share price at 478p, i.e. nearly at the bottom of the fall. As can be seen, the following uptrend was broken on 20th November 1995 at 486p, before the price rose up on the other side of the formation.

The investor would therefore have suffered a small loss over the course of two months, and would not have been left in the share to enjoy the rise to the 560p level. Thus, as with other indicators, the RFI is usually not able to deal with rapid movements of this type.

Although, as we have shown, there are occasions where the RFI method generates late selling signals, it is much more useful as a generator of buying signals, and the examples given in this chapter should serve to illustrate the power of this indicator.

Channel Analysis

The 'envelope method' was first described by J.M. Hurst in the United States in 1970 and has since been developed in the UK into the technique now known as Channel Analysis (CA). The name is derived from the fact that share prices can be shown to remain within channels of constant depth, and a fairly simple analysis of the share price data will provide all of the information necessary to draw these channels.

The CA technique is an extremely powerful method for determining the most probable course of the share price over the near future, taking into account the degree of randomness inherent in share price movement. It will alert the investor to the probability that a trend in the share price will change direction within this future time window, so that the investor is well placed to take advantage of the change once it has been confirmed.

Note the above emphasis on confirmation that a change in direction has occurred. CA is a probability based method that takes into account the cyclical predictable components and the unpredictable random components of share prices. CA therefore signals that it is *highly probable* that a trend will change direction at a certain point in the near future, but there is still a finite possibility that the direction will change sooner or later than this. The Gulf crisis is a prime example of an unforeseen random event with a particularly depressing effect on world stock markets. Waiting for confirmation of a predicted change will prevent the investor from jumping in too soon and be carried along in the wrong direction by an adverse trend that seems never-ending.

The use of terms such as 'probability based', 'predictable cyclical components' and the like may give the impression that a degree in mathematics or statistics is necessary before an investor can begin to understand or take advantage of channel analysis. Nothing could be further from the truth, since excellent results can be obtained with nothing more than a chart of a share price and a pencil. In other words, channel analysis is an ideal technique for those investors who are inclined towards charting methods in general.

The guiding principles of the CA technique can be encapsulated in a number of observations:

- Share price movement contains both random and cyclical components.
- A channel of constant depth can be drawn so that the share price will penetrate the channel boundaries on only a few occasions. The depth should be the minimum possible commensurate with the restriction on boundary penetration.
- The channel can be projected a limited distance into the future. Future price movement will obey the same rules as past movement, i.e. the vast majority of the movement will be contained within the channel.
- When the share price approaches the upper or lower boundary of the channel, there is a high probability that it will reverse direction.
- The shape of the channel is due to cycles, i.e. trends, in the share price of periodicity greater than the periodicity of the channel.
- The price movement within the channel is due to random movement and the effect of cycles, i.e. trends, of periodicity equal to or less than that of the channel itself.
- Further channels can be constructed outside existing channels. The rule then is that the outer channel should be constructed with the minimum depth possible subject to the restriction that the inner channel should not penetrate the outer channel substantially.
- The advantage of using several channels nested within each other is that they can be drawn so as to represent short term, medium term and long term trends. The investor will then be able to estimate for how long a particular trend will persist before it is forced to change direction by a more dominant longer term trend.

With a computer system these channels will be drawn automatically such as to obey the rules for penetration by prices and other channels, and the figures in this chapter are produced in this way by the Microvest 5.0 package. It should be noted that many computer packages that draw 'envelopes' are not drawing channels in the way that they should be drawn. Many use a constant percentage from the central average rather than a constant depth, and many use a fixed number of standard deviations from the central average. While these may have their uses, they are not based on the vital concept of adjusting boundaries so that only a small percentage of data points lie outside them.

For the pencil and paper investor, it will be found that only a small amount of practice is necessary in order that channels can be drawn by eye with a high degree of accuracy.

Some shares are much more amenable to CA than others. High volatility is a prime requirement, since the better timing of the investment imposed by CA will enable the investor to take advantage of a large proportion of the rises. In this context it should be noted that high volatility should apply to short term movements as well as long term ones.

A useful starting point for a discussion of the power of channel analysis is the Allied Domecq share price. Figure 13.1 shows nearly 14 years of weekly data with a channel of constant depth drawn so as to contain the short term price movements. There are at least 20 occasions when the price is at the upper boundary for a short period of time, and a similar number for the lower boundary. The channel has been drawn in this case so that only 3.5% of points lie outside the boundary. It follows that if the share price is currently at or just outside a boundary, then the probability of it staying in that position is small. A close inspection of Figure 13.1 shows that when the price rebounds from a boundary, it eventually reaches the opposite boundary. The vertical channel depth in this instance is about 100p. When the price rises from the lower boundary to the upper one, the change would be 100p for a horizontal channel, more than this if the channel is rising (the amount by which the channel has risen has to be added to the 100p), and less than this if the channel is falling (the amount by which the channel has fallen has to be deducted from the 100p).

We can see now how CA provides a great advantage over the other type of indicator discussed in this book: not only can we determine when a price trend is likely to change direction by virtue of it being at a boundary, but we can estimate a target area into which the price should eventually arrive, i.e. quantify the extent of the trend that we are using for our investment.

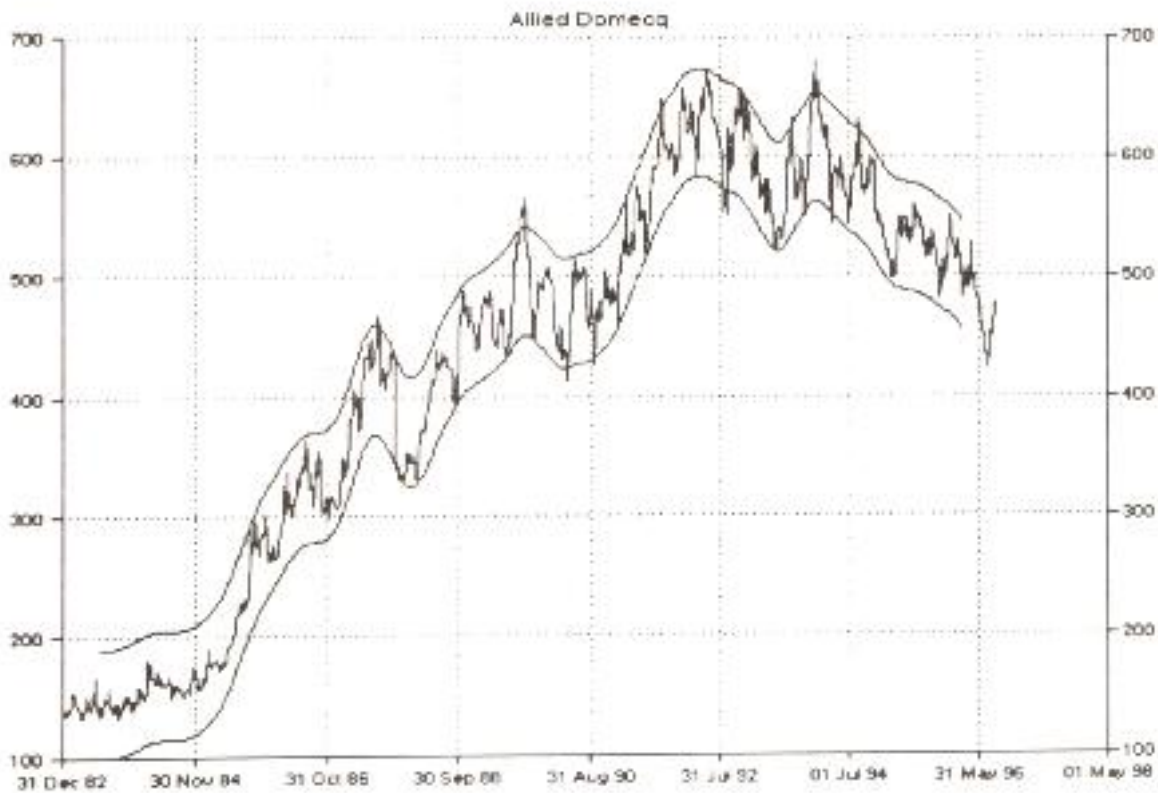


Figure 13.1 Nearly 14 years of weekly data for Allied Domecq show that the short term price movements are contained within a constant depth channel which is drawn around the Allied Domecq share price



Figure 13.2 A shorter section of the Allied Domecq price history using a 53-week and a 201-week channel

A much better appreciation of the way the price oscillates inside the inner channel and the way in which the inner channel oscillates within the outer channel can be obtained from the enlarged part of the chart shown in Figure 13.2. Two channels are now drawn, the inner one being based on a 53-week average and the outer one on a 201-week average, for a five-year section of the data. Here we can see that there are 10 points where the price touches or crosses the lower boundary of the inner channel, and 10 points where it touches or crosses the upper boundary of the inner channel.

There are also three places where the inner channel is at or slightly above the upper boundary of the outer channel, and two places where the inner channel is at or slightly below the lower boundary of the outer channel.

While the channel in Figure 13.1 had a depth of approximately 100p, the better detail of Figure 13.2 enables us to see that the inner channel (the same as was drawn in Figure 13.1) has a depth of 92p, while the outer one, not drawn in Figure 13.1, has a depth of 140p. Channel depth is a function of the average upon which the channel is based when drawn by computer. The longer the span of the average, the greater is the channel depth. The value of the average is chosen for the reasons discussed in Chapter 10 on moving averages, i.e. to remove trends of shorter periodicity than the ones

we are interested in. In Figure 13.2, therefore, values of 53 weeks and 201 weeks have been chosen in order to focus on fluctuations of greater than one year and greater than about four years. Thus we expect troughs in the inner channel to occur more than one year apart, and peaks to occur more than one year apart. It follows that the gap between a trough and a peak, i.e. the points at which the inner channel touches the lower boundary and then the upper boundary of the outer channel, will be at least six months. This is a useful period to allow for the payoff from the initial investment. Similarly, peaks and troughs in the outer channel will be at least two years apart. However, the outer channels in this and succeeding charts are not used primarily in the sense of estimating when they turn, but rather in providing a boundary against which the inner channel will bounce. The smoother nature of the outer channel makes it easier to extrapolate it into the future. Since the channels are based on centred moving averages, the turning points in them will not become obvious until a point in time half a span of the average after the turning point. Thus it is at channel turning points that difficulty will arise, since the extrapolation of the previous direction of the channel will show it going in the wrong direction. It is for this reason that investors should wait until various indications are being given that the channel has changed direction before an investment is made. Such reasoning is employed in the next example to determine that a channel must have changed direction.

The section of the Allied Domecq share price from October 1988 to early 1991 is shown in Figure 13.3. Up to the low point at the end of April 1990 the outer channel was falling, although the rate of fall was declining. The event that confirmed that the outer channel must have changed direction from April onwards is the almost vertical rise to the peak at 518p. If the outer channel had been extrapolated so as to continue downwards then this peak would have violated the upper boundary by a very large amount. The only way in which this peak can lie close to the upper boundary is if the outer channel has turned up prior to that point.

This bend in the outer channel must be accompanied by a change in the direction of the inner channel so that it, too, is rising after the low point in April 1990. Since the price is at the top of both inner and outer channels when at the peak price of 518p, this is not the time to buy. From that point onwards the inner channel has bounced back from the upper boundary of the outer channel and is then falling. Although the price falls to the bottom of this inner channel in August 1990, this would not be a good time to buy since this channel is falling. The optimum time is when both channels are rising, and this occurs when the price drops rapidly from 488p to 425p. At this level the price is at the extrapolated lower boundary, and therefore must be expected to bounce back. Since the extrapolated direction of the outer channel is upwards, the inner channel must bounce upwards from it, so that following this trough we have the desired situation that both channels are rising.

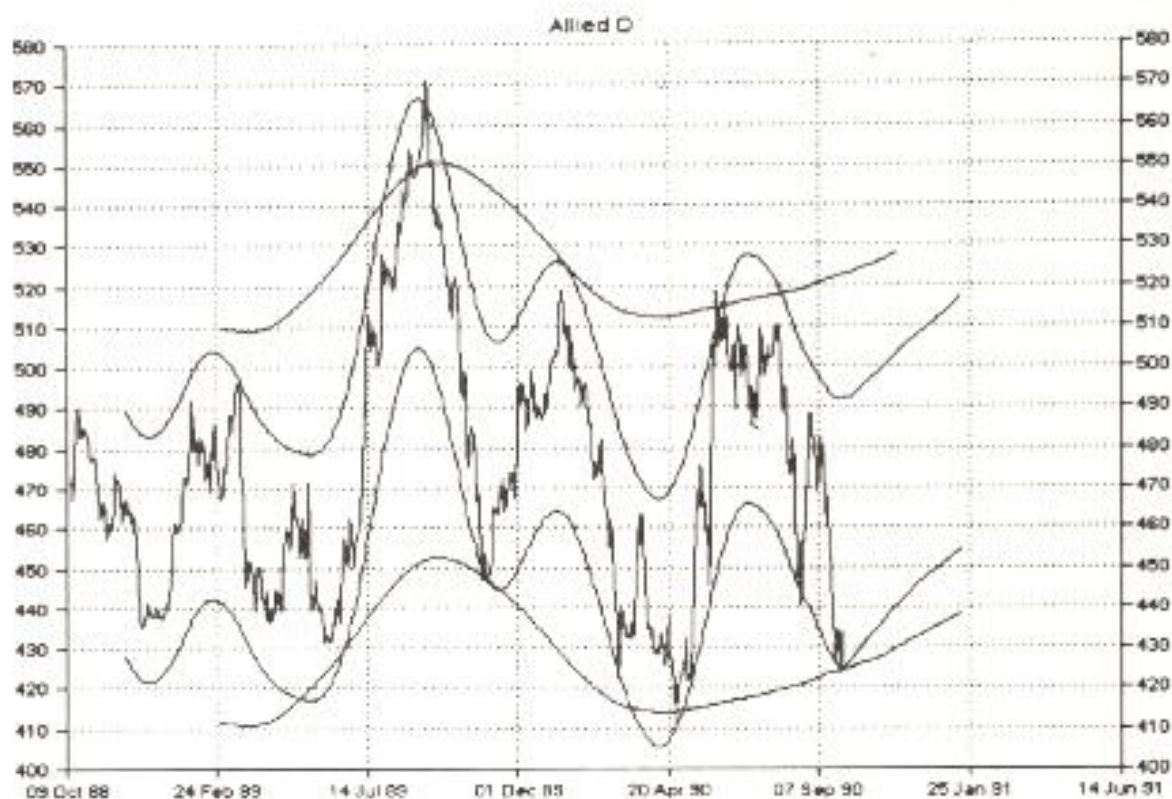


Figure 13.3 A buying point has just been reached in September 1990 for Allied Domecq

We must wait for the price to form a trough at the lower boundaries, since the random content of price movement may cause the price to fall below the lower channel boundary. As can be seen on closer inspection, the price actually forms two troughs at the boundary. An investor buying after the first one would be paying 434p for the share, and would see the price fall back to 425p before recovering back to 434p. Since this fall to 425p is only just over 2%, a stop loss would not be triggered. The investor would then be able to take advantage of a very rapid rise in price to 485p, i.e. 11% in a matter of a few days.

This subsequent movement of the price can be seen in Figure 13.4. The level of 485p, rapidly reached, is still below the extrapolated upper boundary of the inner channel as well as being only just over halfway up from the lower boundary of the outer channel. Thus the investor would not envisage selling at this point since the target area at the upper boundary has not been reached. However, a stop loss would be in operation at all times to cover those cases where the price falls back without ever reaching the upper boundary. Although the price then dips from this peak of 485p, it falls exactly 5%, so would not trigger a stop loss of 5%, which requires this percentage to be exceeded.

A few weeks later, the price has risen again to 505p. As shown in Figure 13.4, this is now at the upper boundary of the inner channel, even though

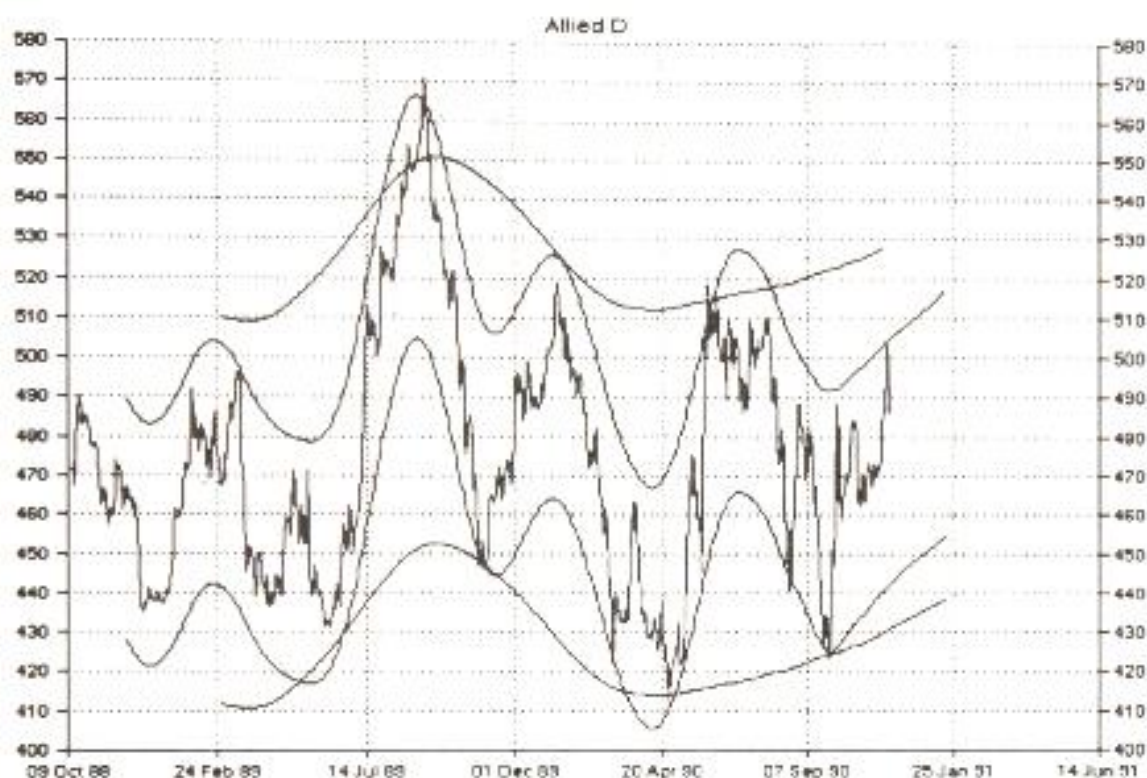


Figure 13.4 The price reached the upper boundary of the inner channel at 505p, thus reaching the selling area

the inner channel has not reached the top of the outer one. Thus the probability of the price falling back from this level is high. The investor now has two courses of action: firstly, to sell on the grounds that since the price will probably fall, it is best to leave the share; or secondly, to stay with it since the inner channel is still rising and has yet to meet the upper boundary of the outer channel so that a price fall would be only temporary.

The investor taking the first course of action would probably achieve a price of 488p in view of the rapid retreat from the peak price of 505p. From this one buying and selling operation, the investor would have made a gain of 12% in just over two months.

The investor who sold would have another opportunity to get back on board once the price reached the lower boundary again on 25th January 1991. The trough price was 461p, but since a rise from this low point is necessary in order to define the trough, the buying point would come the next day at a price of 472p, i.e. at a price some 16p lower than the price he sold for a few weeks previously. This point can be seen in Figure 13.5.

Figure 13.5 also shows the price entering the selling area with the sharp rise to 568p. At this point the price is at the smoothest extrapolation of the upper boundaries of both the inner and outer channels. This is now a strong selling indication since it is clear that the inner channel is about to

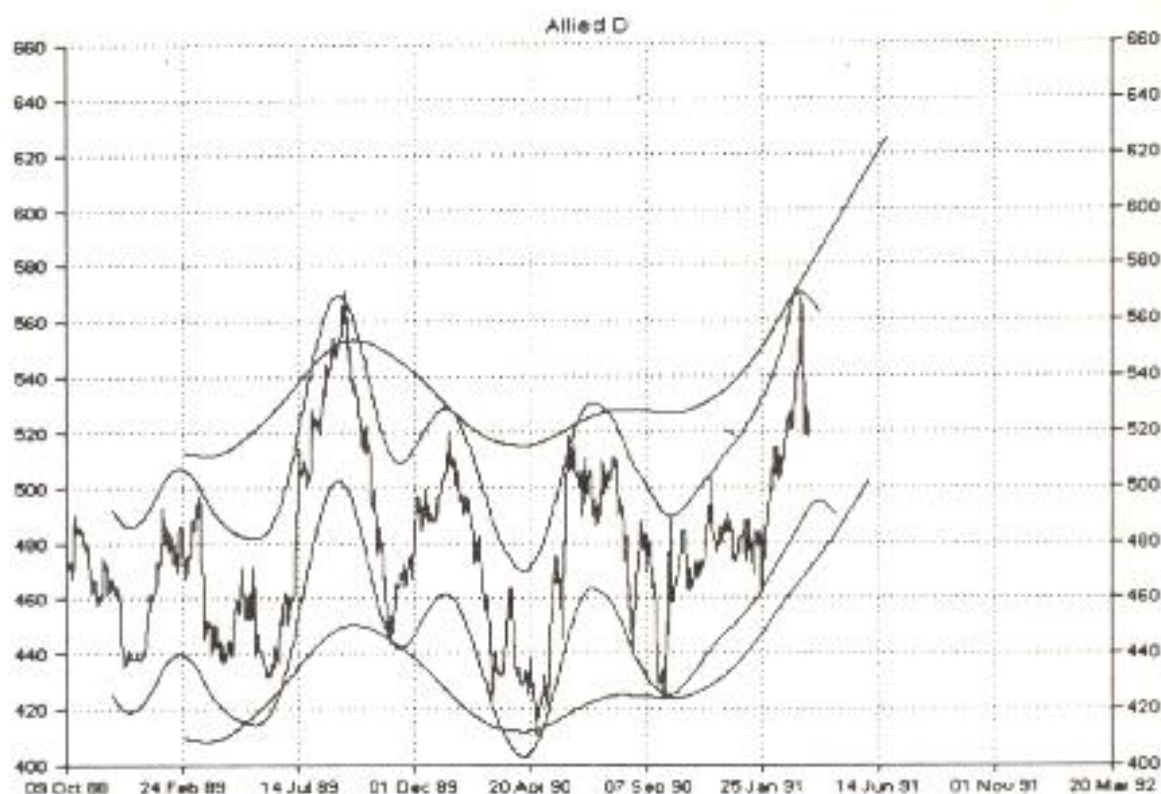


Figure 13.5 There was another buying opportunity in January 1991 once the price rose from the trough of 462p. The price then enters the selling area at the upper boundaries at around 568p

bounce downwards from the outer channel boundary. As with all channel selling signals, the investor must wait for a peak to be formed, so must suffer a fall from the peak value, even though occasionally this might be a rapid fall. In the present case, the price drops to 539p, which is the signal to exit the share for another useful profit. The investor who stayed in from 434p would see a 24% gain, while the investor who bought at 472p would see a 14% gain.

In Figure 13.6 we can see that there was yet another opportunity in Allied Domecq, with the price having fallen rapidly back to just above 500p. At this point, the projected inner channel would still be rising, as would the outer channel. Since this new low point would be on the lower boundary of the inner channel, the rise from this low point would signal a buy. The corresponding selling signal would occur in the group of peaks at around 570p, giving a rise of the order of 65p.

Figure 13.6 also shows the next buying point, with the price down to 520p. At this point the inner channel must have fallen from the high point around the 580p level, and would meet the rising lower boundary of the outer channel, to give a bounce back upwards. The investor, waiting for the rise from 520p to define the trough, would be able to buy at about 522p, since the price stayed at that point for a few days. Figure 13.7 shows

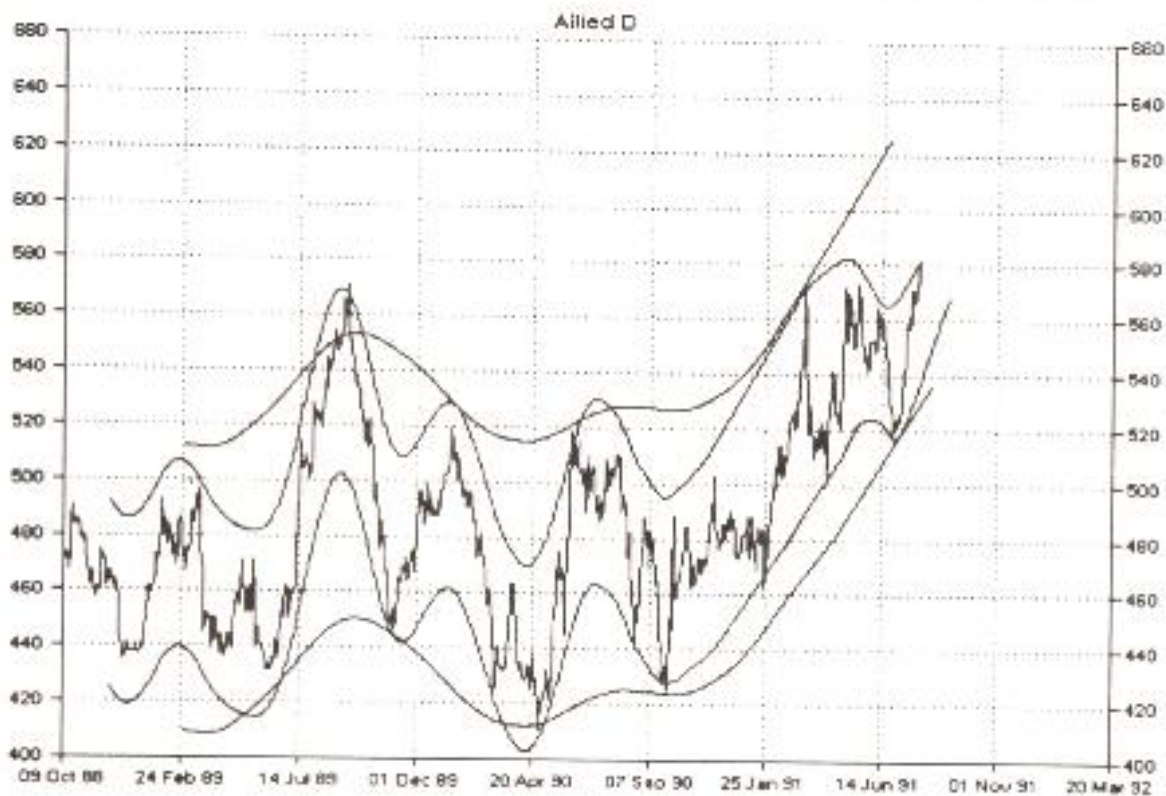


Figure 13.6 By the end of June 1991, the Allied Domecq price was back down to the extrapolated lower boundary of the outer channel, providing another buying opportunity at about 525p

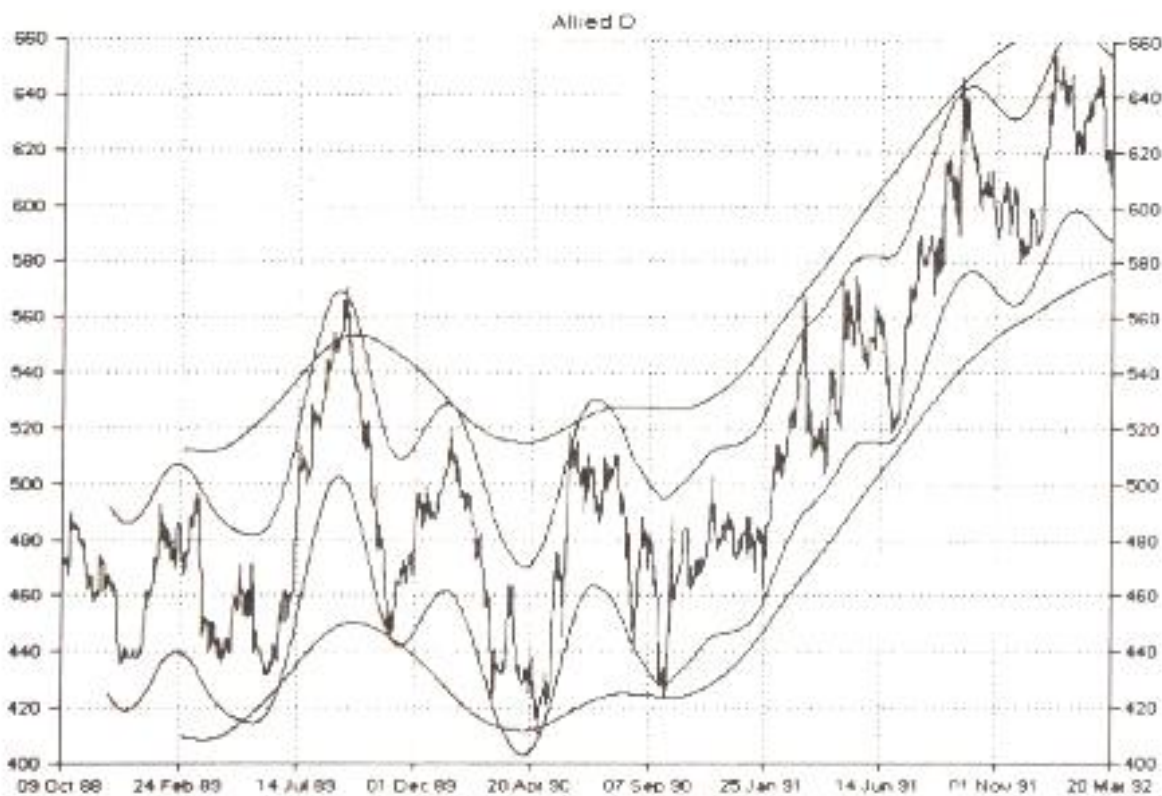


Figure 13.7 The actual channels produced by computer subsequent to the price movements discussed previously show how accurate the predictions were

the subsequent course of the price and channels as produced by computer some time in the future, showing that the projections and predictions of turning points were extremely accurate.

It is interesting to note the behaviour of the inner channel when viewed over a long timescale such as that in Figure 13.7. From October 1988 to September 1990 the channel exhibited marked cyclical behaviour. This disappeared from then until June 1991 when it reappeared again. As mentioned in the next chapter, this is a characteristic of cyclic behaviour in the stock market; it waxes and wanes periodically in an unpredictable fashion. Shares which are just entering a phase where a cycle of particular nominal wavelength is becoming important are likely to maintain this particular cycle for some time, whereas shares which have been in such a phase for some time are likely to see this cycle disappear for some time. Although sometimes a cycle of a certain nominal wavelength may fluctuate in a similar fashion in many shares at the same time, this may not always be the case. This is shown by the example of Glynwed, in Figure 13.8. As with Allied Domecq, the cyclical behaviour of the inner channel is quite marked for at least two years, but then disappears in July 1992, the inner channel then being really a version of the outer channel but with less depth. However, Glynwed and Allied Domecq went through their marked cyclical behaviour at totally different times.

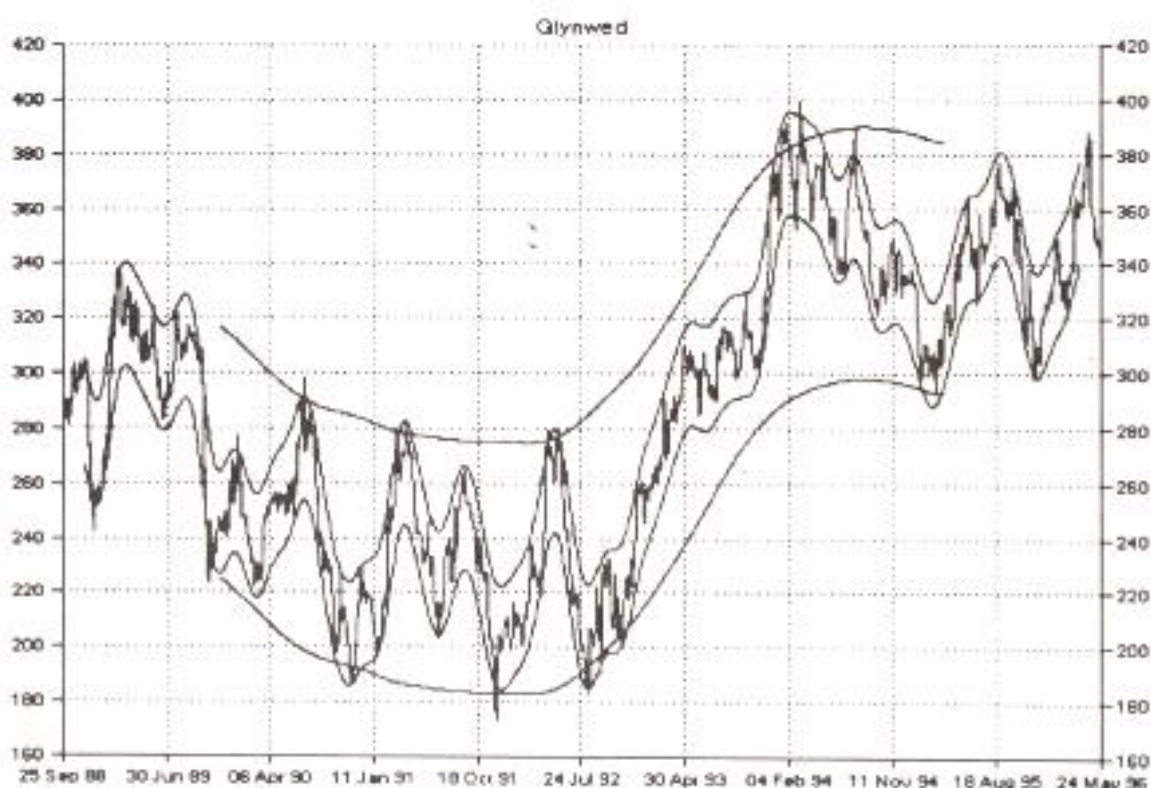


Figure 13.8 Channels in the Glynwed share price. Note how the inner channel is very sinusoidal for two years, but that the amplitude of this cycle disappears in July 1992

Although well-defined cycles of large amplitude for the inner channel have the advantage that the buying and selling points will be extremely well defined, there is an obvious disadvantage in that the investor is buying and selling at frequent intervals. This can often mean that a long term uptrend in the share price can see the investor making several forays into the same share, whereas he would have been more comfortable with buying and riding the uptrend for a longer period.

The Glynwed example is a good one of the disappearance of the fluctuations in the inner channel allowing the investor to stay on board for a very long and sustained rise. The decision-making process by which the investor bought in August 1992 can be explained by reference to Figure 13.9, where the channels as they would be interpreted at that time are shown.

The lowest point in the share price was reached on 5th December 1991 at 173p. At that point, the outer channel would be extrapolated as still falling, with a depth of 90p. The feature that determines that the outer channel must have turned upwards is the twin peak formation on 24th April 1992 at 279p and 22nd May 1992 at 278p. To maintain a channel depth of 90p would mean that the lower boundary must be 90p below these peaks at 278/279p, i.e. at 188 or 189p. However, if the outer channel had continued in its falling mode then the lower boundary would lie at a level of about 170p, some 18p or 19p lower than calculated. The only way

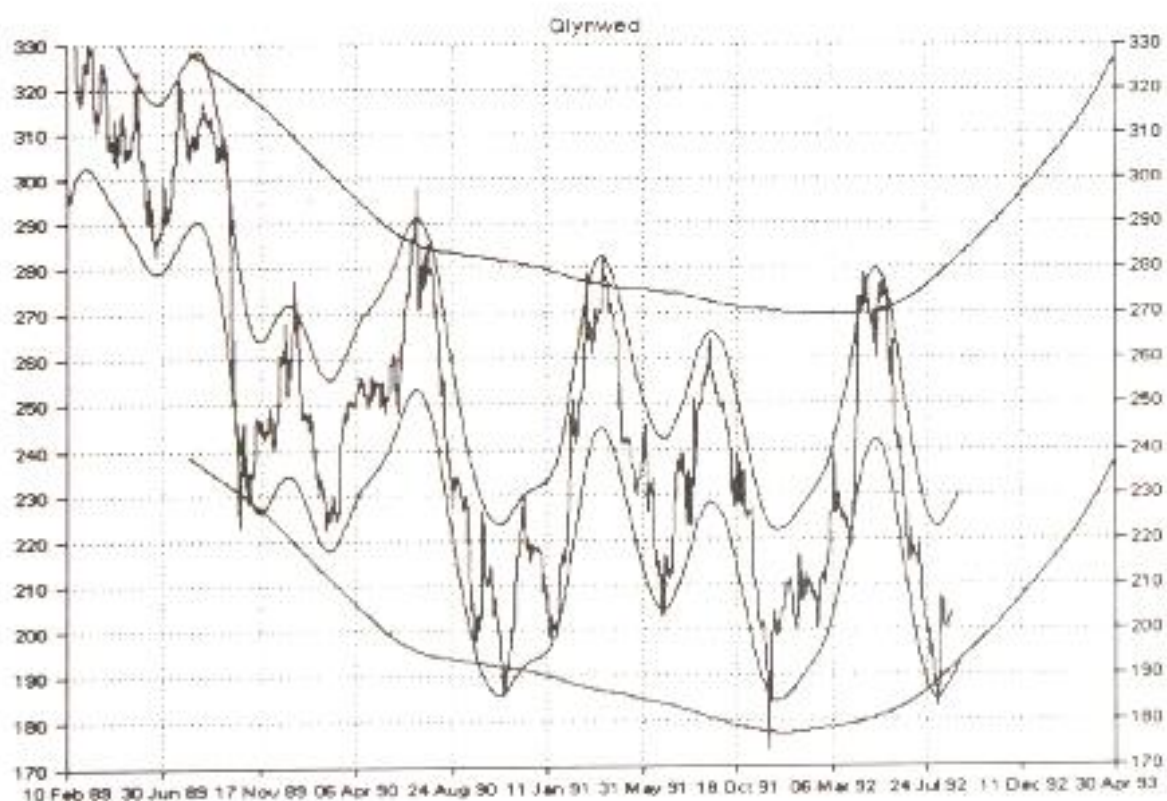


Figure 13.9 A buying point in August 1992 in Glynwed. The price is just up from the extrapolated position of the lower boundary of the outer channel

the lower boundary can be made to pass through or close to 189p is by bending it upwards, i.e. taking the low point of 173p in December 1991 as the turning point.

Now that we have deduced that we have an upward trending outer channel, the buying point will be given when the price, contained within the short term channel, falls to this rising lower boundary. This happens with a fall to 183p on 13th August 1992. The investor must wait of course for the price to rise from that point in order to establish that a trough was formed at or near to the boundary. This happens when the price rises to 196p the next day. Thus everything is pointing to a good potential for the share price: this outer channel is rising, but has not been rising for long, and the inner channel which was falling must be about to bounce upwards from it. Thus the investor can buy with confidence.

As can be seen from the previous figure, this was a marvellous buying opportunity, since the price rose without triggering a stop loss or reaching the top of the extrapolated channel until February 1994. The price at that time was round 390p, giving the investor a near 100% profit.

Although these examples show the power of the method, it is still vulnerable to the unexpected random movement that no indicator can cope with. There will be occasions when a channel, having just changed direction for the better, reverses direction some weeks later without running the expected profitable course.

Adverse and totally unpredictable movements such as these, soon after a buying operation has been carried out, can easily be protected against by a stop loss which is geared to the channel analysis technique. This is readily done by keeping a level a few percent below the predicted lower boundary of the inner channel. Then as soon as the price falls down through the projected channel and reaches the rising stop loss level, the share should be sold. Such an approach will limit the damage caused to just a few percent, and this will easily be recovered by the subsequent profitable investments.

Cycles and Probability

Although the charts shown in this book so far have been produced by computer, they could just as well have been produced by manual plotting on graph paper. Many of the indicators consist of trendlines, which could be drawn on the chart by means of a ruler or flexible curve. Other indicators such as moving averages, Welles Wilder, Relative Strength and the Rise-Fall Indicator require a fairly simple calculation, which although perhaps tedious, could be carried out with the aid of a calculator.

While computers obviously speed up the process of producing a chart and carrying out these types of calculations, a few computer packages are now taking advantage of the power of computers to carry out tasks which are so complex that they are impossible to do in any other way. The analysis of cycles present in stock market data, and the determination of the probability associated with the change in direction of a long term trend, are good examples of the application of computers to develop new fields of research.

CYCLES IN STOCK MARKET DATA

An analysis of stock market data by mathematical techniques such as Fourier Analysis shows that all possible wavelengths from one day to many years are present in the data. However, fortunately, some wavelengths are much more dominant than others, so that the possibility exists of using important wavelengths present in the data to fine tune an investment decision. A package such as Microvest 5.0 is able to highlight a narrow window around a specified wavelength, and display this along with the original data. An example is shown in Figure 14.1 for Allied Domecq. Here the nominal one-year (261-day) cycle has been extracted from the data. In Figure 14.2 the nominal 25-day cycle has been extracted. A number of observations can be made from these two figures:

- The wavelength, i.e. peak to peak distance, is not an exact, constant 261 or 25 days, but varies either side of these values. This is why the term 'nominal' is used to describe it.
- The amplitude, i.e. trough to adjacent peak distance, also varies considerably.
- The nominal cycle passes through phases of strongly ordered cyclicity followed by phases of disorder in which amplitude and wavelength are unpredictable.

The first two of these observations mean that cycles normally have a high degree of predictability, since if wavelength and amplitude are varying within certain limits, then the behaviour of the cycle in the immediate future can be predicted within such limits. This would lead to predictions that a cycle has probably just bottomed out, and will probably rise by such and such an amount before topping out again at a certain point in the future within a window of plus or minus x days or weeks. While this statement is obviously hedged with ifs and buts, the fact is that the limits to be applied to the prediction are not that wide, and therefore give a good indication of the future behaviour.

It is the third observation that can cause a difficulty. What was a good prediction of future behaviour can go haywire because the cycle being observed is just about to disappear for a while, i.e. the ever-present threat

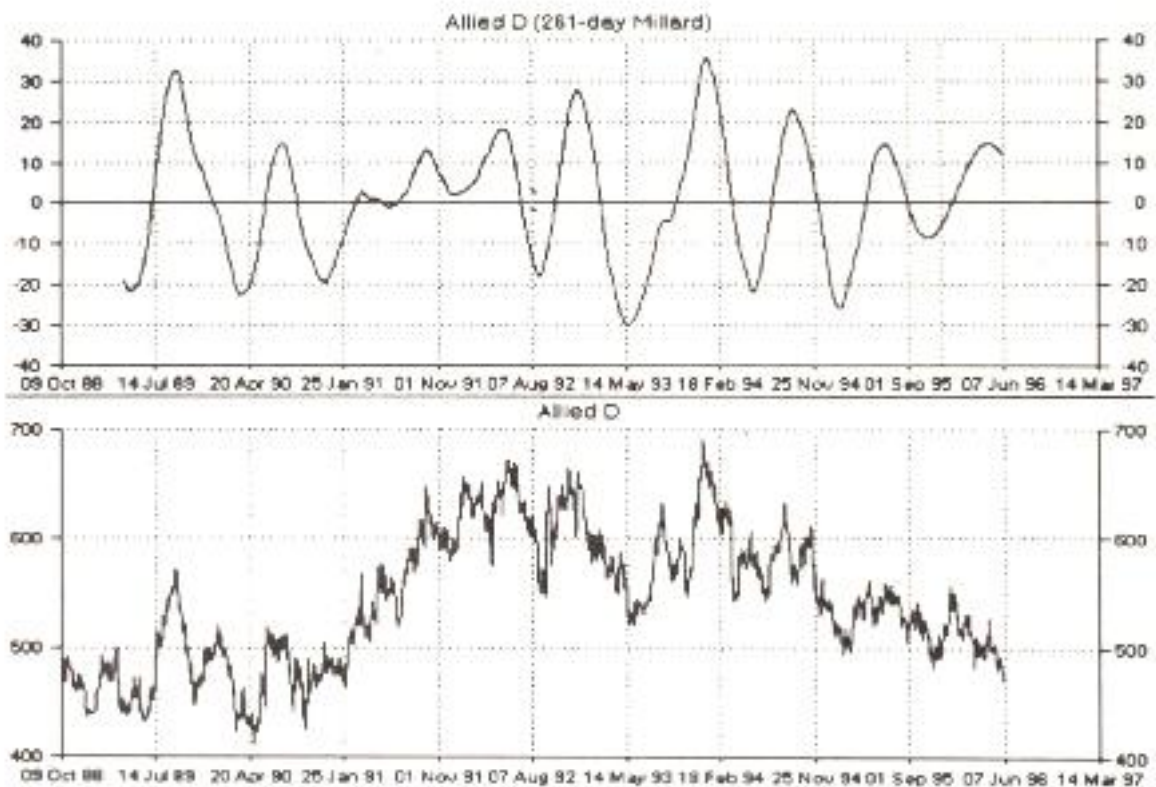


Figure 14.1 The upper panel shows the nominal 261-day cycle in Allied Domecq

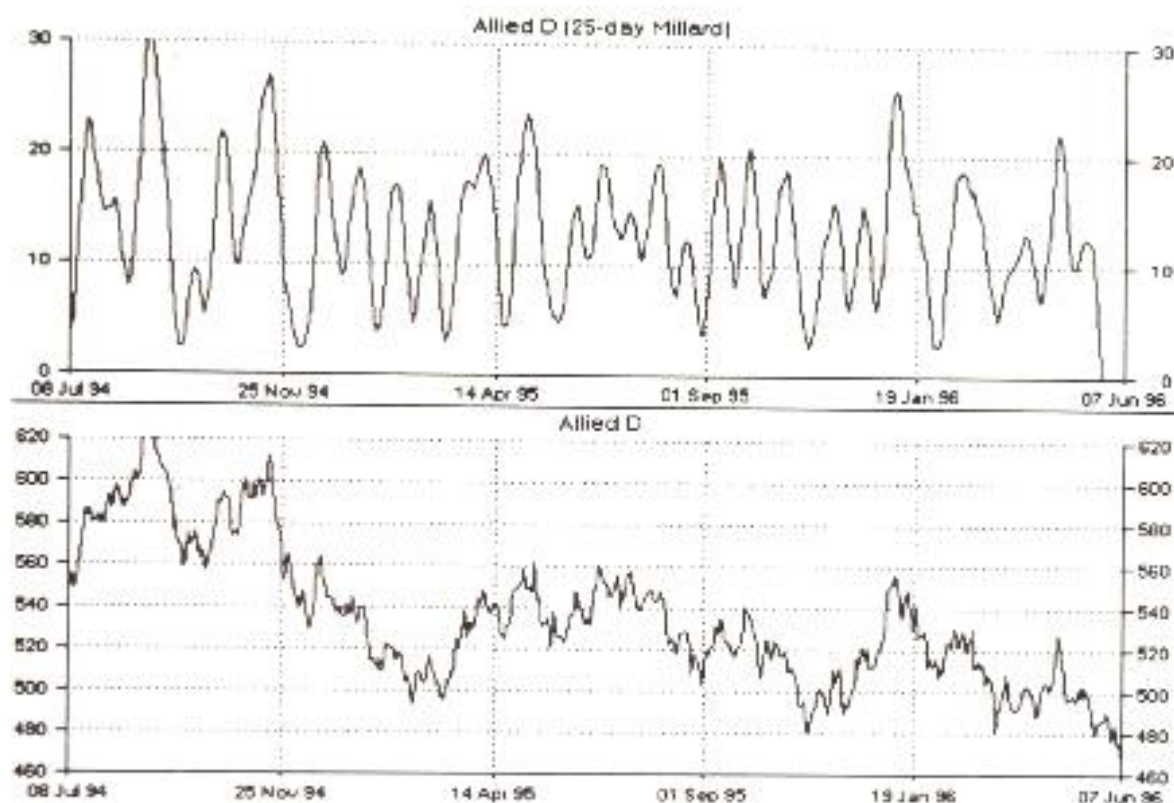


Figure 14.2 The upper panel shows the nominal 25-day cycle in Allied Domecq

of random behaviour strikes out of the blue. Fortunately, this random behaviour of a nominal cycle persists for only about a quarter to a third of the time as can be demonstrated when long price histories are analysed. This means that as long as the possibility of a reversion to random behaviour is constantly borne in mind, cycle analysis is an extremely powerful technique for predicting future behaviour.

At this point, it is important to make the link between the behaviour of a cycle and the behaviour of the share price. We have already commented that some cycles are very important while others are not. In Figure 14.1 we can see that between August 1992 and February 1994 the 261-day cycle had a maximum amplitude of the order of 65p, i.e. swinging from -30 to +35. This is the contribution that the cycle makes to the share price, i.e. it caused a 65p increase in the share price. It can be seen that the low in the cycle is exactly lined up with the low point in the share price. Thus a correct prediction of the state of the cycle would have got the investor into the share at this low point to enjoy a substantial rise. The rise is more than the 65p caused by the 261-day cycle because it is probable that many other cycles also bottomed out at the same time, adding their contribution to the rise in the share price.

The point has to be made here that the mathematics of cycle analysis means that the last section of the cycle has to be estimated using probability techniques, i.e. the current status of a cycle is not known exactly but is a best estimate.

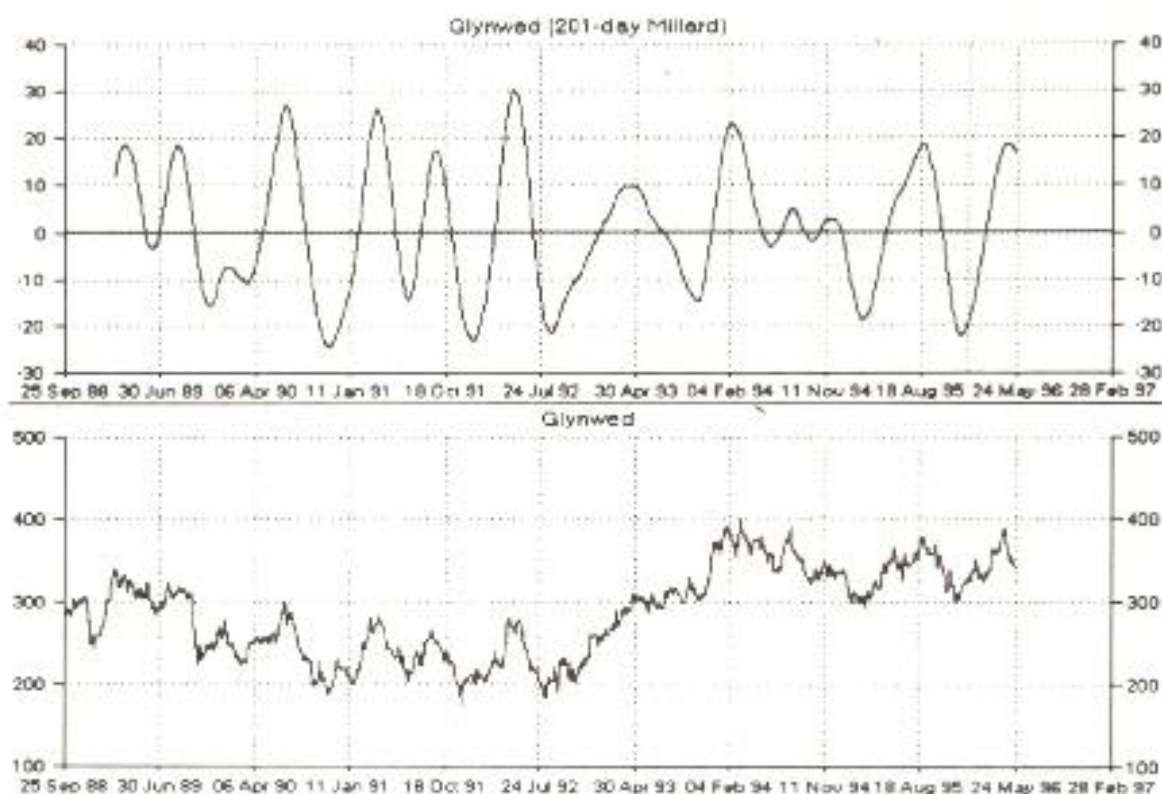


Figure 14.3 The upper panel shows the nominal 201-day cycle in Glynwed. This shows that regular behaviour disappeared temporarily in July 1992, as was noted in the channel analysis example in the last chapter

We noted in the last chapter that the channels drawn for Glynwed showed a cyclical behaviour of the inner channel which then disappeared when the price entered its long uptrend. An analysis of the 201-day cycle in Glynwed (Figure 14.3) now confirms that the cyclicity did indeed become random in July 1992 for a period.

As an example of the application of cycle analysis to decision making, we can take the example of Glynwed as already discussed in the last chapter. We noted that the low point in the price occurred on 5th December 1991 at 173p. Channel analysis would not have allowed us to buy since the prediction at that time was that the outer channel was still falling. In Figure 14.4 we show the predicted status of the 201-day cycle a few days later once the price had risen from the low. The prediction is that the cycle has only just passed its peak, and is therefore on its way down. Obviously at this point no investment would be made, since the falling cycle would have a negative effect on the share price.

The channel analysis of Glynwed in the last chapter showed that an investment would have been made on 17th August 1992 with the price at 207p, because the price had just rebounded from the extrapolated lower boundary of the channel. Figure 14.5 shows the predicted status of the 201-day cycle at that time. The cycle is rapidly approaching its trough, so that it

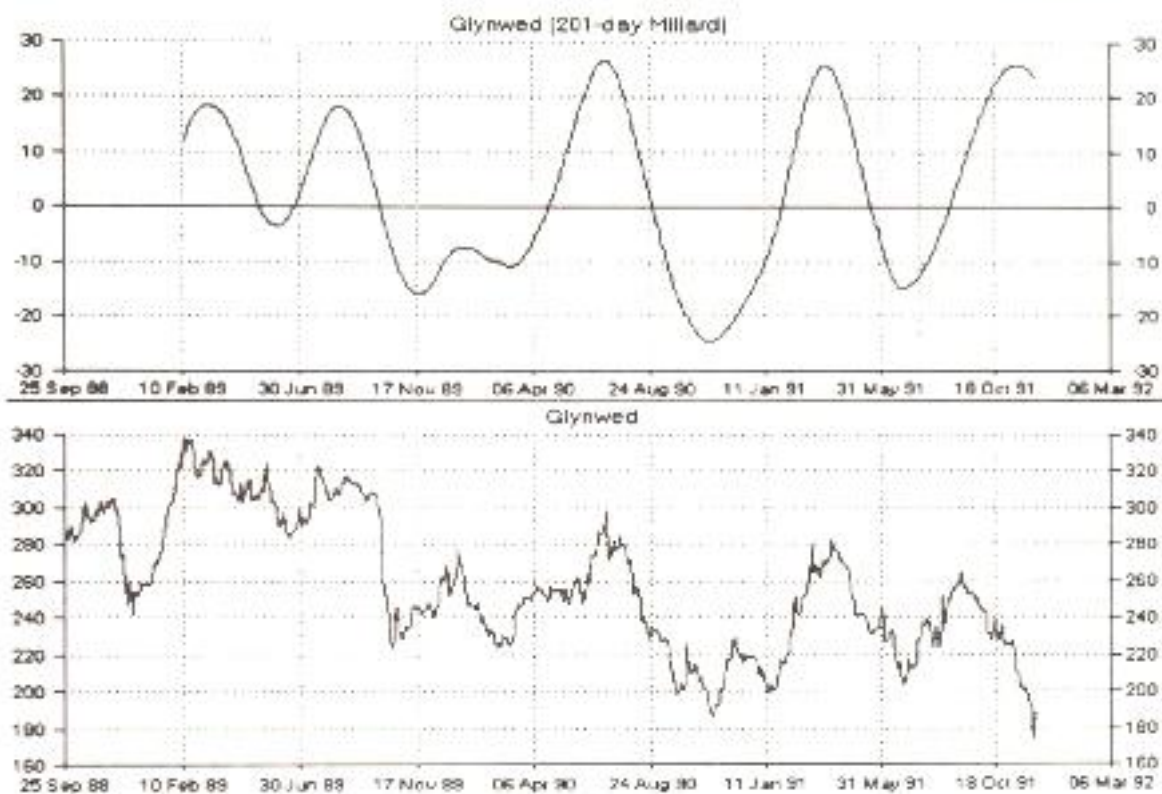


Figure 14.4 The upper panel shows the nominal 201-day cycle in Glynwed. At the time the price moved up from the low point of 173p on 5th December 1991, the prediction for the 201-day cycle is that it has just topped out. No investment would be made

is expected to turn up shortly. It is probably nearer the turn than is shown in the figure for the reason that the predicted peak is somewhat delayed in time compared with the group of peaks in the share price. Since normally the peak of the cycle should correspond in time to important peaks in the share price, then the estimation of the trough in the cycle is probably running a number of days late.

Assistance in this matter can be obtained from a view of a cycle of shorter wavelength. Figure 14.6 shows the 101-day cycle in Glynwed. Here we can see that this particular cycle has bottomed out, and is on its way up. As further confirmation that a number of important cycles are bottoming out at this point, the predicted status of the 25-day cycle is shown in Figure 14.7. Again, this cycle has just bottomed out.

Taking into account therefore that two major cycles have just bottomed out and that the 201-day cycle is rapidly approaching its bottom, the investment in Glynwed based on channel analysis is therefore confirmed. We noted in the last chapter that a large rise followed from this point, with the price reaching 400p from this buying level of 207p. This large rise is due to the fact that many cycles had reached their turning points at the same time, and since their effect is additive, a healthy rise was to be anticipated.

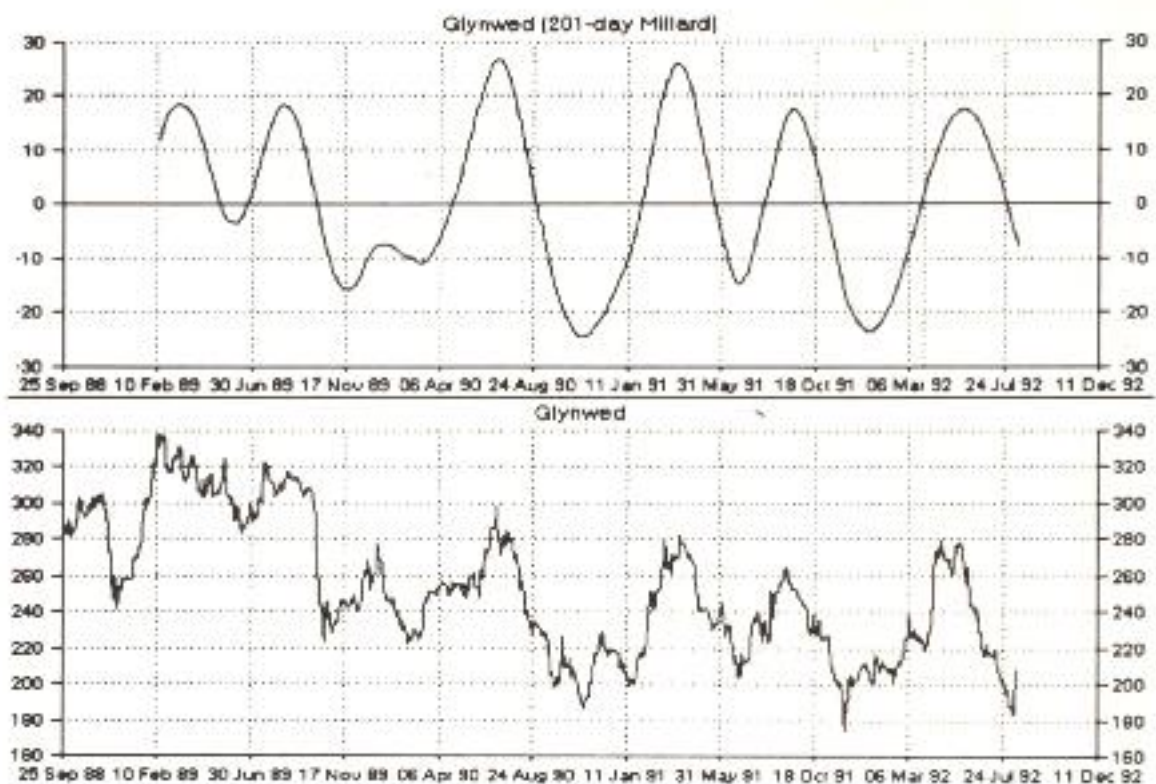


Figure 14.5 The status of the 201-day cycle in Glynwed on 17th August 1992. The turning point will be arriving soon

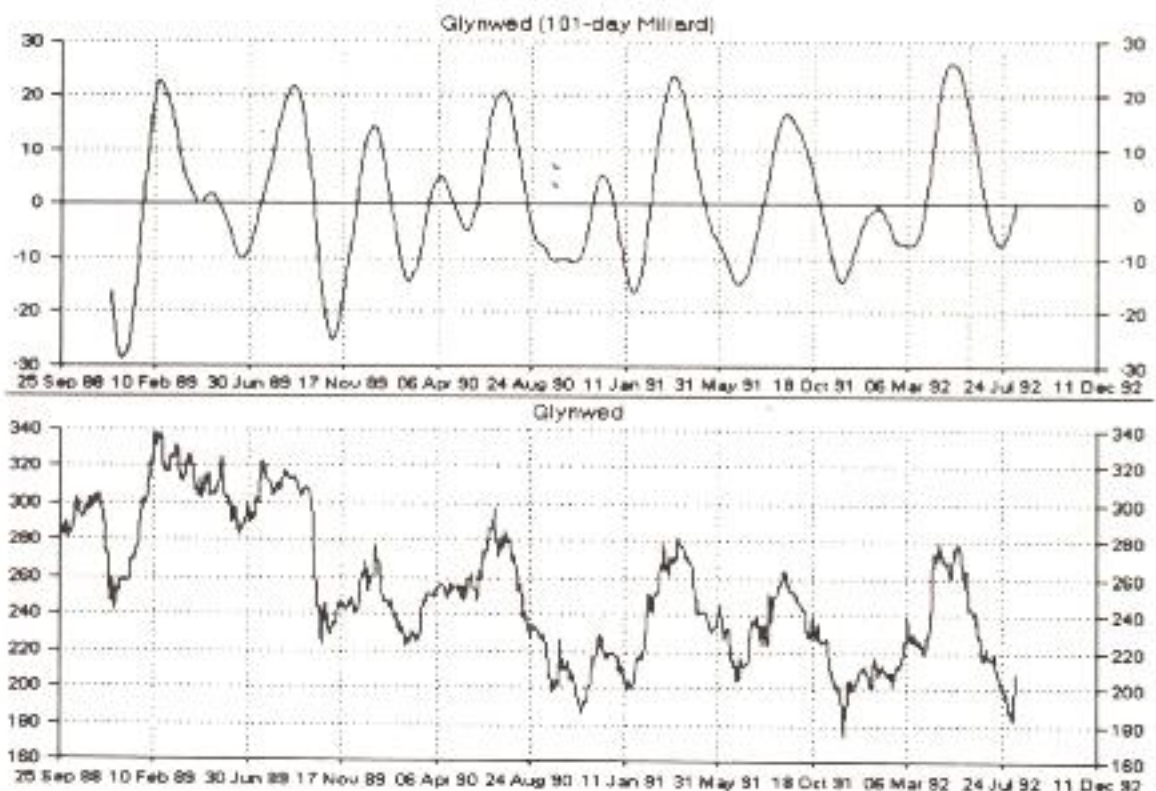


Figure 14.6 The status of the 101-day cycle in Glynwed on 17 August 1992

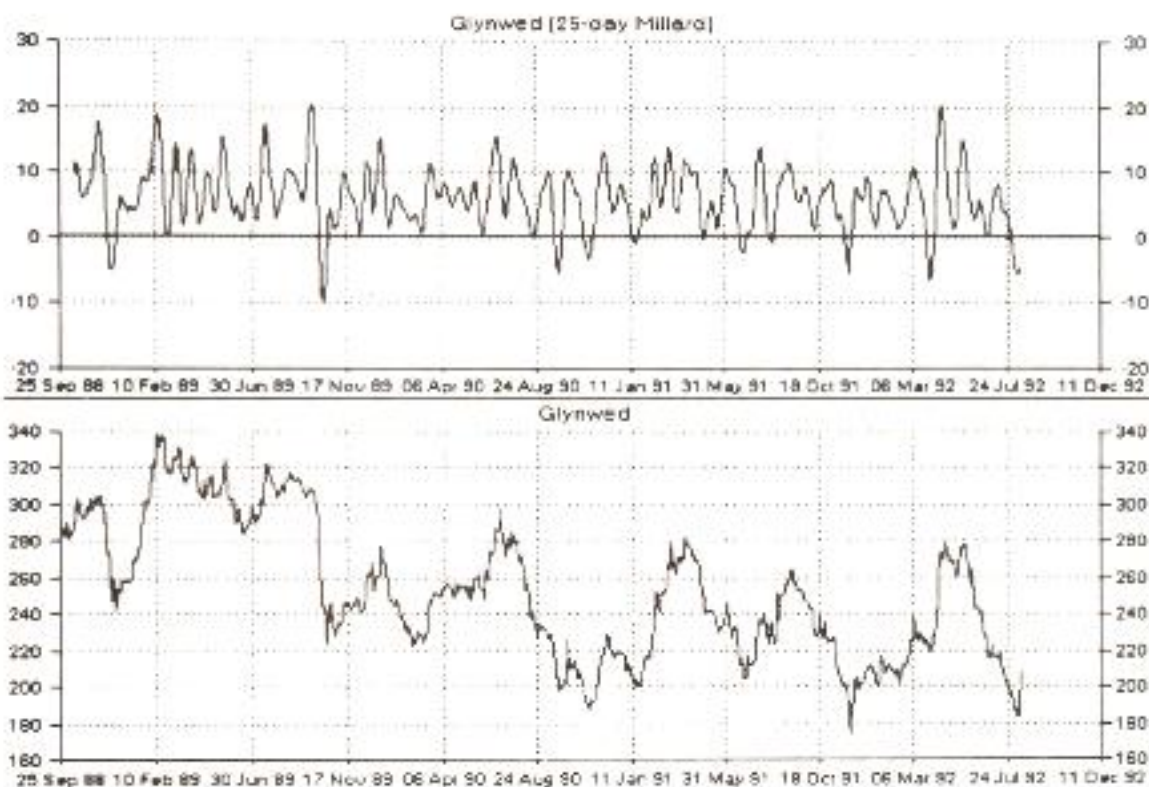


Figure 14.7 The status of the 25-day cycle in Glynwed on 17 August 1992

As a general rule, a number of cycles should be examined routinely in this way in order to determine such 'golden points' where the majority of them are bottoming out or about to bottom out. Looking back historically at such golden points, an interesting observation is that it often appears that the various nominal cycles which will coincide at the golden point begin to change their wavelengths some time in advance so that this coincidence will occur.

TURNING POINT PROBABILITY

The analysis of cycles in stock market data is taken a great deal further by the Sigma-p probability program. It is only the availability of faster micro-computers that has enabled the complex calculations of multiple cycles and the application of probability and chaos theory to be applied to stock market data. The extensive mathematics used in such calculations have now pushed out the frontiers of predictability to about a year into the future. Naturally, the considerable random content present in cyclical behaviour has to be kept in mind, so that such a program is best operated alongside a stop loss so that the investor is protected as far as possible against a random termination of a predicted trend.

An example is shown in Figure 14.8. The program is asked to predict, on 12th October 1990, at what point the long term trend might have changed direction, and when it would change direction again. As can be seen, the chevrons indicate these turning points, and on 12th October show that the uptrend has already been in existence for about four months. However, with the price comfortably below 500p, an investment can be made since the prediction is that the trend will continue until October 1991, i.e. there is still another year to go before the investment will be in the termination area.

The validity of the prediction is shown one year later in October 1991, with the price now having peaked at 645p (Figure 14.9). An investor who bought a year earlier at 485p would therefore see a 32% gain over the year.

In another example, the prediction made for Boots on 4th May 1990 is shown in Figure 14.10. The most probable turning point in the long term trend was estimated to be around 21st September 1990, i.e. some four months in the future. The turn after that was predicted at around 1st November 1991.

The accuracy of the prediction is shown by the view of the subsequent price movement as shown in Figure 14.11. As can be seen, the price

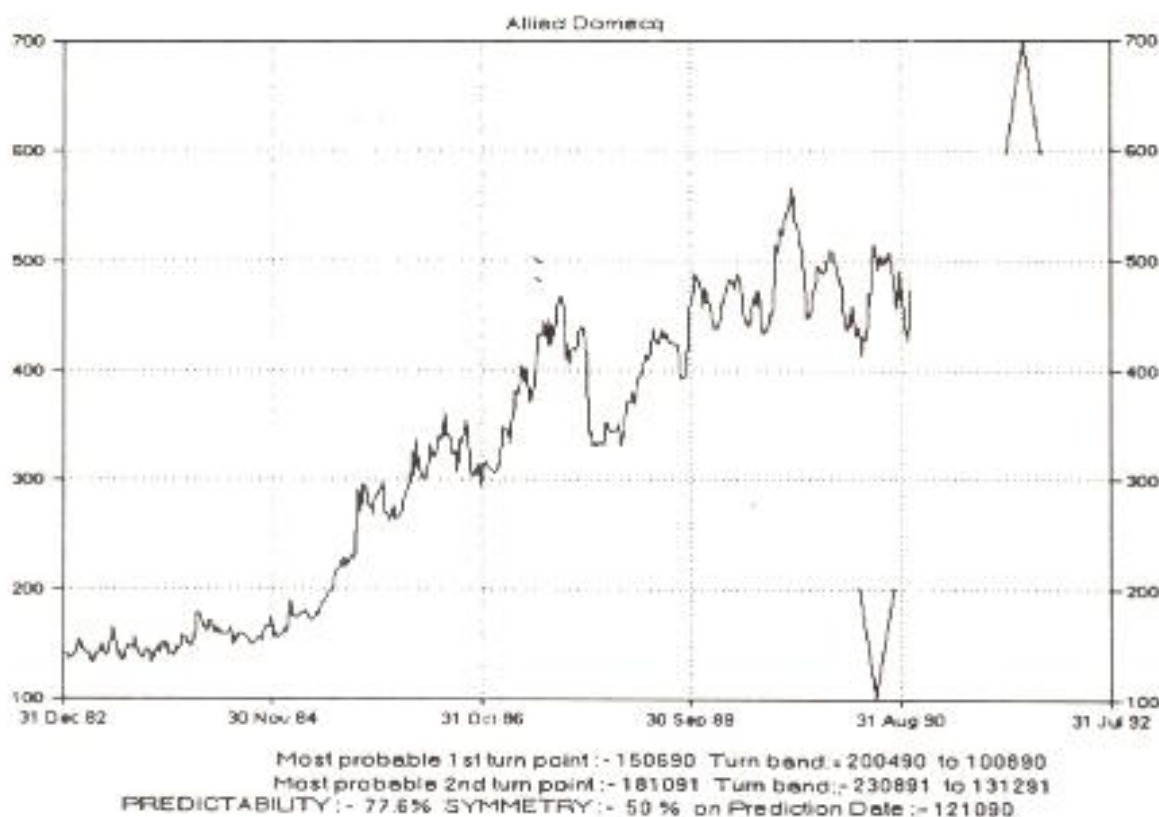


Figure 14.8 The Sigma-p program predicted on 12th October 1990 that the long term trend in Allied Domecq had already turned up and would peak around the end of October 1991, i.e. would last about a year

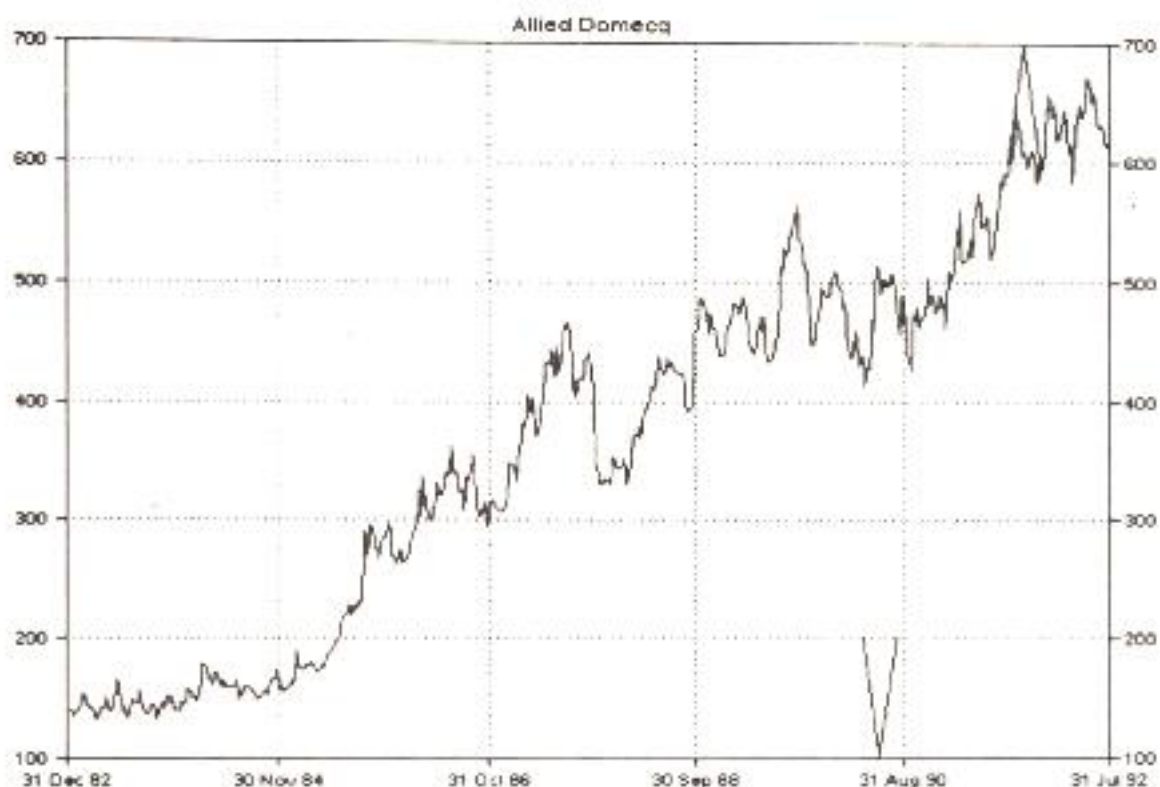


Figure 14.9 This view of price movement in Allied Domecq up to July 1992 shows the accuracy of the Sigma-p prediction made in October 1990.

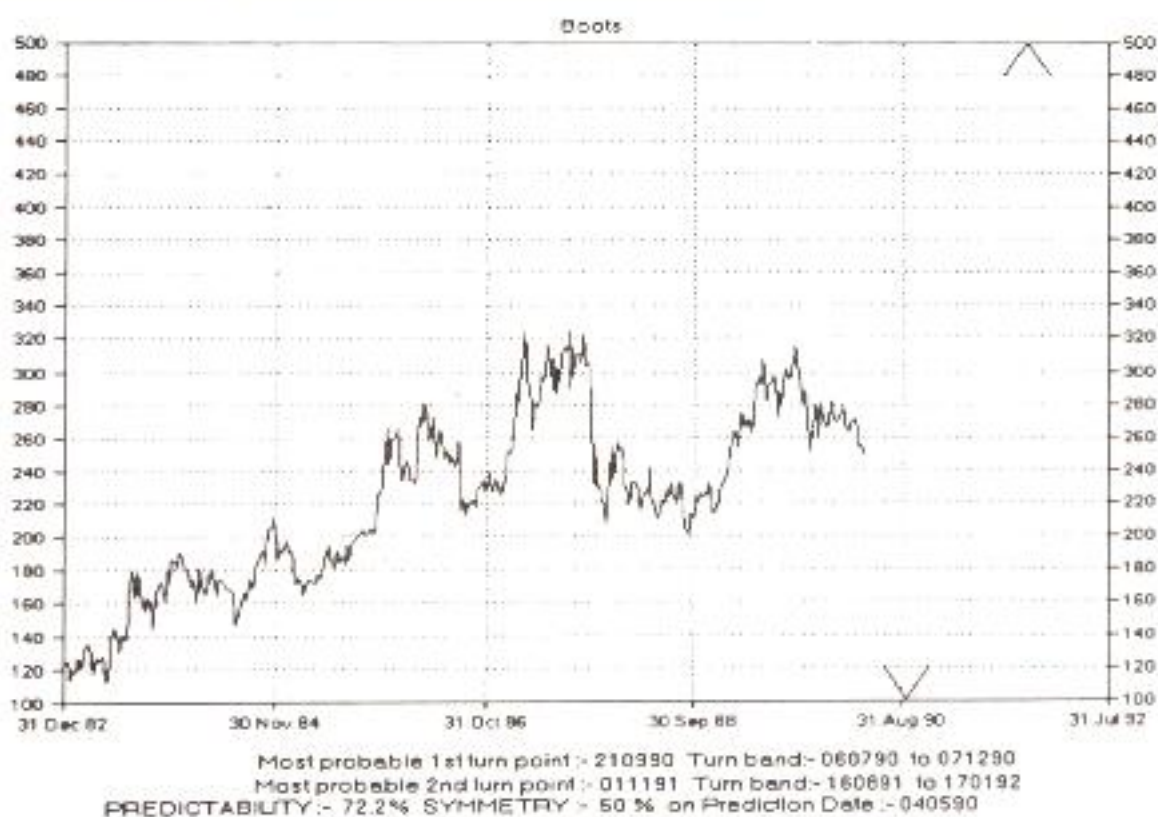


Figure 14.10 The Sigma-p program predicted on 4th May 1990 that the long term trend in Boots would turn up around the end of September 1990 and would run until November 1991

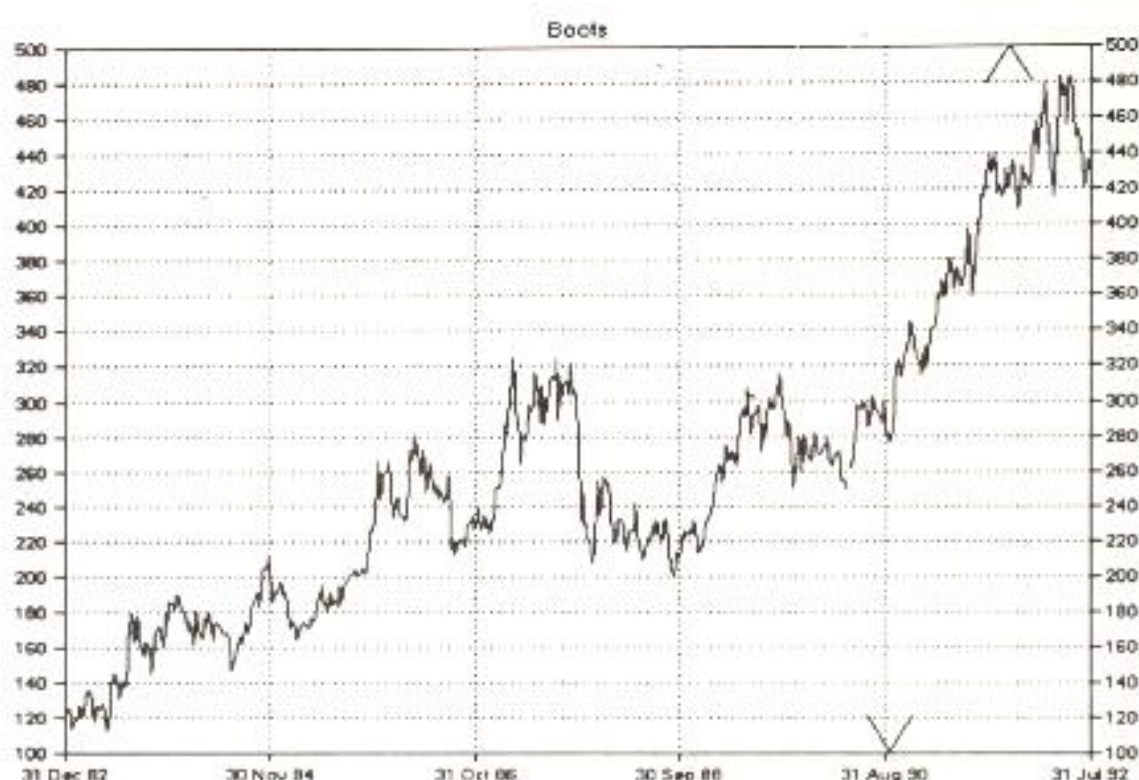


Figure 14.11 This view of price movement in Boots up to July 1992 shows the accuracy of the Sigma-p prediction made over a year earlier

enjoyed a long run up to 480p over the next year, giving the investor a handsome profit.

The last chapter, on channel analysis, showed that there was always a problem at channel turning points when the channels were extrapolated, since the extrapolation would show channels continuing in the wrong direction until the data reached a point about half a span of the average after the turn. The Sigma-p program, since it is based on probabilities, provides much better estimates of channel turning points than those produced by extrapolation, as can be seen from the chart of Boots in Figure 14.12. At the time of the prediction in May 1995, i.e. where the channels terminate, the normal extrapolation shows the channel to be still falling, even though the subsequent data shown in the figure mean that the channel must have changed direction. The probability estimate shows the channel to have changed direction around the end of January 1995, so that an investment could now be made, thus taking advantage of a very good rise to the 600p level in early 1996.

The examples in this chapter are meant to give the reader a flavour of the important contribution that computers are making and will make in the future in the field of investment research. It must be stressed again, as it has been throughout this book, that share prices are subject to random

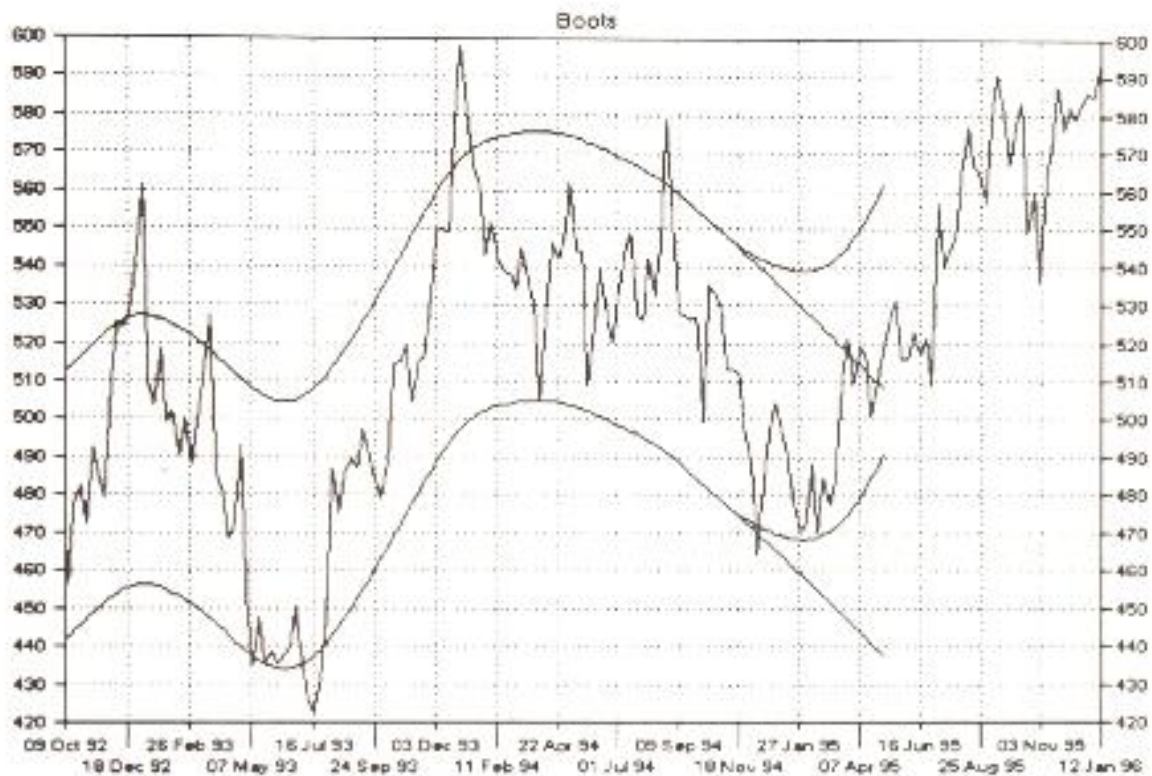


Figure 14.12 The problem at channel turning points is well illustrated for Boots. The downward trending channel is the result of the usual channel extrapolation method, and from the future price movement can be seen to be incorrect. The upward turning, correct channel is produced from a probability analysis by Sigma-p

influences. Because they are random, it makes no difference how powerful the computer or computer program is that is being used to predict prices, there will never be such a thing as a cast-iron prediction.

Conclusion

The following rules were first put forward in the book *Channel Analysis*, and have been modified slightly because of the differing subject matter of this book.

The main way in which investors lose money is to fail to admit that they have made a mistake, and thereby fail to cut short a losing position early on before substantial losses have accumulated. If investors can overcome this psychological problem, they shift the balance of probabilities even more in their favour, because they will allow their profits to run while minimising their losses. Failure to maintain discipline at all times will totally negate the powerful techniques which have been presented in this book. Some guideline rules which should help the investor to maintain this discipline are presented in the following pages.

CAPITAL MUST BE PRESERVED AT ALL COSTS

This is the first and overriding rule of stock market investment, and the remaining rules and comments are designed so that this first rule can be followed consistently. The natural consequence of this rule is that when a position has been taken in a share, the investor must get out as soon as it is obvious that the share price is misbehaving. There will always be another opportunity for making profit. The prevention of loss is as important as the achievement of profit. Remember there is no such thing as a paper loss. All losses are real.

NEVER ACT SOLELY ON ADVICE

Besides the internal pressure to stray from this disciplined path caused by investor psychology, the external pressures from the investment industry are immense. The investor is constantly bombarded with advice from stockbrokers, junk mail and the media. Some of the most successful

investors read nothing but the share prices page in their newspaper and do not even glance at the rest of the business section. I would not go quite as far as this, since a feel for the general investment climate which can be gained from these pages can be extremely valuable. By all means listen to advice from whatever source, but never, never, act on it without analysing the data by the methods discussed in this book and then act only if the analysis is favourable.

NEVER PUT MORE THAN ONE-EIGHTH OF YOUR CAPITAL IN ONE SHARE

However positively the investor feels about the potential for a particular share, this positive feeling must be tempered by knowledge of the existence of random movement. Because of this, the investor should not, and must not, have 100% confidence in any one given situation. The temptation to go for broke and put everything into one magic share is always at the back of the investor's mind, and that is where it should stay. Never, never, commit more than one-eighth of the investment capital to one share. This will keep the risk as low as possible while maintaining the potential for profit. From time to time there will be occasions when it is not possible to find eight shares in which to invest. In such cases put the money into short term interest-bearing accounts where it can be got at instantly when the need arises.

DO NOT ANTICIPATE SHARE PRICE TURNING POINTS

Never make an investment until after the change in direction of the trend has been confirmed, and never disinvest until the change in direction has been confirmed. The profit available in upward trends which one buys into shortly after the start of these new trends is such that one does not need to worry about squeezing out an extra one or two percentage points by trying to anticipate them.

PROTECT PROFITS BY STOP LOSSES

Just as it is not necessary to try to squeeze extra gain out of a trend by jumping the gun, so it is not necessary to try to squeeze extra gain by continuing to run after the finishing tape has been passed. In the majority of cases, the termination of an upward trend results in a sudden sharp reversal of price over the course of one or two days. The risk increases dramatically as the inner channel increases in upward slope. Although I

have shown by channel analysis that one can determine the selling point closely in time, it is essential to protect oneself against the conjunction of an adverse random movement and a change in direction of short term cycles. This can only be done by using one of the various stop loss methods discussed in Chapter 1. It is better to sell prematurely than to lose profit by staying invested too long in a share which is reaching its peak price.

PROTECT AGAINST LOSSES BY STOP LOSSES

This would appear to mean the same as the previous heading, but here the stop loss is meant to apply not to the profitable position above, but to the case where an incorrect buying decision has been made and the share starts to fall in price instead of rising. In this case the position never was in profit. Even so, the rule about protection of capital is paramount. The temptation is to think that one was slightly premature in recognising the start of the upward trend, and that in a few more days or weeks the expected trend will materialise. This attitude is a major cause of stock market losses, and must never be adopted. Never forget that if you can reduce your losses to say 4–5%, including dealing costs, when you make a bad decision, then this is only 4–5% of one-eighth of your total capital. You could afford to experience theoretically 20 or 25 such losses before one-eighth of your capital was wiped out, and 160–200 such losses before all capital is lost. The chances of such a thing happening are at vanishing point for the conservative investment policy advocated in this book.

STAY WITH FTSE100 AND MID-250 SHARES

The influence of dealing costs on profit is quite large when compounded over a number of transactions. The spread of prices, i.e. the difference between buying and selling prices for a share, is part of this equation. The spread is at a minimum for the top 350 shares, and there is usually plenty of opportunity for finding a share amongst these shares which is approaching an upward trend. If not, then of course move down the capitalisation league table, but accept the fact that the spread will be greater.

IGNORE DIVIDENDS

Dividends are nice to receive, and if the investor is fully invested in eight different shares for most of the year, he can expect to receive many dividends which will add to his profit. That is all that can be said about them, for the investor should never let an impending dividend affect his buying or selling operation. In other words, if the signal comes to sell, do not think

of hanging on for a little longer because the dividend will be announced the following week. If a buying point is approaching, do not buy in before the change in direction is confirmed simply because a dividend will be captured.

KEEP TRACK OF THE MARKET

It is always essential that the general investment climate is tracked by means of a market indicator such as the FT All Share Index or the FTSE100 Index. Weekly values are sufficient to do this. In spite of recent speculation that the London market is becoming uncoupled from Wall Street, short term dramatic movements in the US market almost always affect the London market. Thus it is a good idea to keep track of the Dow Jones Index on a weekly basis.

If the market is falling, adopt a more cautious stance towards your existing holdings and new purchases, and watch your stop losses very carefully. The investor may well find that in the initial stages it is very difficult to stick to this investment philosophy. He may find that straying off this narrow path brings him an instant reward that he would otherwise have missed. This is just the quixotic nature of the world of probability. Over a number of years the investor following these guidelines will see his capital gaining steadily in value, while the investor who allows himself to be diverted from time to time will be subjecting himself to increasing risk that will inevitably take its toll. Finally, the investor who has successfully followed these techniques for perhaps a year or so will begin to look for greater gains than those which can be made out of investment in shares. Then, and not before, is the time to turn to the magnifying effect of dealing in traded options. In inexperienced hands traded options can be unacceptably risky, but they can be extremely rewarding when they are thoroughly understood and when the investor is correct about the movement of the underlying security. The author's book *Traded Options Simplified* (see Appendix) will take the beginner from the basics through to simple strategies and then on to advanced strategies, as well as discussing some powerful new techniques for investors familiar with the field.