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Fibonacci and Gann Applications in Financial Markets

Practical Applications of Natural and Synthetic Ratios in Technical Analysis

With CD-ROM

GEORGE A. MACLEAN

Fibonacci and Gann Applications in Financial Markets

WILEY TRADING SERIES

FIBONACCI AND GANN APPLICATIONS IN FINANCIAL MARKETS

Practical Applications of Natural and Synthetic Ratios in Technical Analysis

George Alexander MacLean

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Contents

For Angus and Jenny for all the skills and encouragement and to the Great, the Good and the Gurus for the knowledge

Cuimhnichibh air na daoine bho' n d' thainig sibh
(Gaelic proverb)

Acknowledgements

Preface

Technical analysis is not a difficult subject for study, but it does suffer from a bad press from time to time. It attracts strong personalities, as it is a very small pond and strong characters tend to stand out more and get heavy coverage in the media; we can suffer from the bad press by having far too many technicians saying they forecasted various key corrections in the past. These boasts have to be taken with a pinch of salt. Publicity for technical analysis in the media is a good thing as technical analysts are not shy and tend not to hide under bushels. However, within our own community the real stars are the quiet ones who do sterling work and research day in, day out with little or no acknowledgement.

These are the experienced analysts who take time to dispense their accumulated knowledge of market analysis and strive to further the bounds of technical education and study. Market understanding has fallen out of favour in recent years as traders shrink the timeframes necessary for a profitable trade. However, that was fine in the bull market times, but is much more difficult in choppy bearish ones. Anyone can catch the trend from simply looking at a screen, but it takes a trained eye to spot when an asset price is running out of steam and indeed looking risky.

It is in such situations that the skills of a good technical analyst come to the fore. In the last 20 years the study of technical analysis has become more formalised. In the past, charting and interpretation skills were passed on from individual to individual or perhaps even picked up from the plethora of business biography books available. However, this is not an ideal situation and a more formal approach is needed. It has been with the networking of analysts regionally and globally that has seen the development of training courses, seminars and even television training. It is to this corpus of information that this book hopes to add.

When I started out as a trainee technical analyst I was never allowed to act on any of my analyses until I had proved myself with a professional qualification in technical analysis, so my learning was bookish and dry and suffered from lack of practical

application. However, subsequent employment opportunities gave me practical skills that cannot be found in any of the more traditional textbooks. Practical technical analysis is quite different from a bookish one – the sheer volume of instruments that have to be analysed on a daily basis, coupled with constraints on time, which mean that not all studies have the time to be drawn, means that the contemporary technical analyst has to be knowledgeable as to when to cut corners, and more importantly when not to.

Traditional paper charting days are gone, as is the gentle skill of taking time to look at trend, pattern and Point and Figure charts and taking a measured long-term view. It is not uncommon for a technical analyst today to consider the long-term view as being until lunchtime. Screen-based charting and price information have allowed this shortening in timescales to develop, but not without some cost. Long-term studies of any financial market are few and far between.

It is only through continued practice and study of new techniques and reviews of old long-learned ones that technical analysts will improve their skills. Technical analysis is not a Dark Art practised by very few acolytes; it offers skills and opportunities to look at markets from both a scientific and an artistic bias, as true technical analysis is a porous membrane between science and art and both skills are needed if the technical view is to be successful.

This book looks at the application of two of the more 'obscure' techniques, Fibonacci applications and Gann theory. Both of these techniques have a long and glorious application history, but it is the careful application of these techniques that has been overlooked now that many charting packages conveniently draw the various patterns on a screen. This book looks at the drawbacks of this convenience and points the student of technical analysis in the right direction and hopefully encourages good technical practice.

While it can be enough to take positions on Fibonacci and Gann analysis alone, it would be seriously wrong to overlook other technical tools. There is a chapter that looks at 'Total Analysis' (Chapter 8) where a sequence of analysis tools, which give a better understanding of the outlook, is suggested.

Contemporary technical analysts stand on the shoulders of giants in our field, and I am fortunate to have met and studied and practised under some of the greats. Bronwen Wood FSTA started me off in this field and her lectures were inspirational. She is greatly missed. Tony Plummer, who turned me from technical analysis of equities to Gilts, can take the blame for my subsequent career. Thanks are also due to Gerry Celaya for showing me how not to be frightened by either intraday charts or Fibonacci tool attack and my fellow board members of the Society of Technical Analysts, especially John Cameron FSTA for encouragement.

Finally, to the stars and giants of the future, this book is addressed to you.

George Alexander MacLean
London

1
Introduction to and History of the Fibonacci Sequence

A brief look at mathematical proportion calculations and some interesting facts about this ratio.

The origins of the Fibonacci sequence are well known to architects, artists and technical analysts, but knowledge of the importance of the Golden Section was known further back in ancient history, definitely as far as the Greeks and, depending on which source is read, as far back as ancient Egyptians and Sumerians. However, evidence for understanding and usage in ancient Sumer is tenuous at best.

Taking a line of any length, the ancients discovered that there was a point on the line where the proportions of the whole to the larger section was the same proportion of the smaller section to the larger section. This point on the line is called the Golden Section.

Knowledge of irrational numbers was known in antiquity, and for the Greeks, especially the Pythagorean school, came as a shock. In ancient times, rational numbers (1, 2, 3, etc.) were believed to have the secret of all knowledge and that any length could be measured using whole number units only; e.g. 9.65 was actually 965 units of some smaller measure. The discovery of pi (π) came as a surprise to the Greeks looking at the relationship between the diameter of a circle and its circumference, as the multiplication factor to find the circumference was not a whole number. Imagine the additional shock of discovering that in a square of side one unit the diagonal was not a whole number that could be counted? That is to say, within the line section that gives the Golden Mean, there is no measure, no matter how small, that will give the result that one part of the line section is a whole number of measuring

units and the smaller is also a whole number. The inability to find common meas-
ures that will give whole numbers for the two sections means that the proportion is
incommensurable.

   This meant that there was no number representing the hypotenuse of the triangle
of sides equal to one, or within the line section, that could be seen as the product of
two others, no matter how they searched. That was just the start as more and more
of what we now call irrational numbers were discovered. It is into this group that the
Golden Section belongs. The Golden Section is an incommensurable number, i.e. it
cannot be represented as a fraction, and was represented by the Greek letter τ (tau),
being the first letter of the word for 'the cut', $\tau o \mu \eta$ (to-mi) in Greek. Contemporary
symbolism for the Golden Section is 'ϕ', which was suggested in the early 20th
century by Mark Barr, an American mathematician, as a homage to Phidias, the
classical Greek sculptor and builder of the Athenian Parthenon and of the Temple of
Zeus at Olympus. What greater honour could there be?

   Much later, in the 15th century in Pisa, Italy, Leonardo de Fibonacci constructed
a simple series after observing the population expansion of a pair of rabbits. He
noted that it took one generation before each new pair reached sexual maturity and
the population exploded. The total number of pairs (breeding and immature) was
noted down. In Figure 1.1, taken from data in Table 1.1, the normal notation from
biological science is used, where F_n is the filial generation and n is the number of
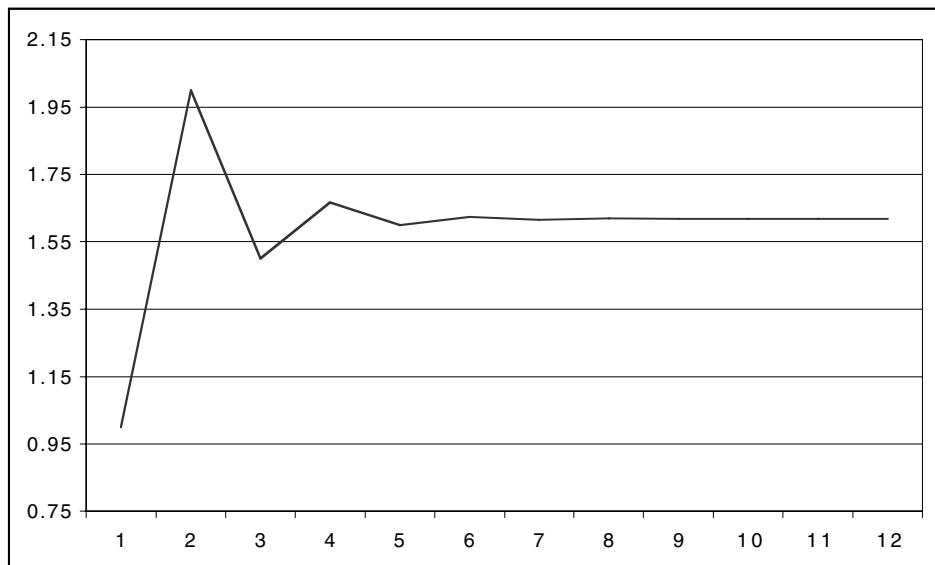
Figure 1.1

Table 1.1

n	1	2	3	4	5	6	7	8	9	10	11	12	13
F	1	1	2	3	5	8	13	21	34	55	89	144	233
		1	2.000	1.500	1.667	1.600	1.625	1.615	1.619	1.618	1.618	1.618	1.618

that generation. Taking this series (1, 1, 2, 3, 5, 8, 13 and so on), each subsequent filial generation is seen as the sum of the previous two generations as follows:

$$F_n = F_{n-2} + F_{n-1}$$

This is an infinite series without limit.

An interesting corollary of this series is that there is a relationship between each filial total. Taking

$$\frac{F_n}{F_{n-1}}$$

the series

$$4.236, 2.618, 1.618, 0.618, 0.382, 0.236, 0.146$$

very quickly tends to 1.618, as represented graphically by Figure 1.1. Further relationships are found by taking F_n with F_{n-2}, F_n with F_{n-3}, etc., resulting in the limits given in Figure 1.2, taken from the data in Table 1.2. These are important values for the technical analyst, for from these our 'common or garden' Fibonacci ratio of 61.8% is derived.

Reversing the ratio will give similar limits, with 0.618, 0.382, 0.236 as key here. These are the main ratios used in technical analysis and a discussion and application chapter follows later in the book. The table of Fibonacci ratios is

$$1.618, 2.618, 4.236, 0.618, 0.382, 0.236 \text{ and } 0.146$$

Normally in technical analysis, these are expressed as percentages:

$$161.8\%, 261.8\%, 243.6\%, 61.8\%, 38.2\%, 23.6\% \text{ and } 14.6\%$$

The interesting number of 1.618 is also derived from the following infinite fraction:

$$1 + \cfrac{1}{1 + \cfrac{1}{1 + \cfrac{1}{1 + \cfrac{1}{1 + \cdots}}}}$$
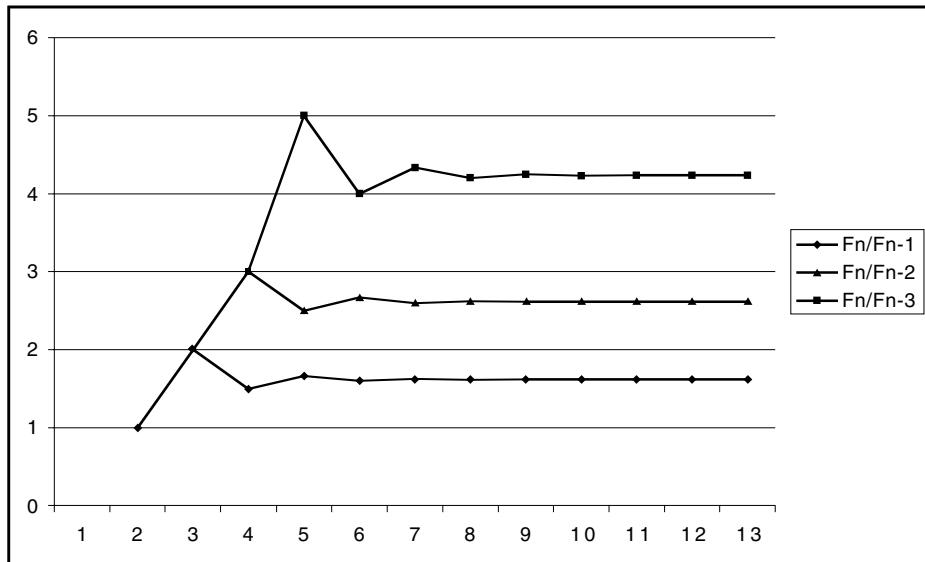
Figure 1.2

Table 1.2

n	1	2	3	4	5	6	7	8	9	10	11	12	13
F	1	1	2	3	5	8	13	21	34	55	89	144	233
		1	2.000	1.500	1.667	1.600	1.625	1.615	1.619	1.618	1.618	1.618	1.618
			2.000	3.000	2.500	2.667	2.600	2.625	2.615	2.619	2.618	2.618	2.618
				3.000	5.000	4.000	4.333	4.200	4.250	4.231	4.238	4.235	4.236

Although this looks complicated, making the above equal to x, it breaks down to

$$x = 1 + \frac{1}{x}$$

resulting in $x^2 = x + 1$ once both sides are multiplied by x. Therefore, using the quadratic solution of

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \qquad \text{with } a = 1, b = -1 \text{ and } c = -1 \text{ (from } x^2 - x - 1 = 0)$$

gives

$$x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4.1(-1)}}{2.1} = x = \frac{1 \pm \sqrt{1 + 4}}{2} = x = \frac{1 \pm \sqrt{5}}{2}$$

which results in $x = 1.618\,033\,9$ (ϕ) and $-0.618\,033\,9$, which is $-1/\phi$.

There are many volumes that look at the interesting properties and occurrences of this ratio in nature. Some key examples of this are the famous nautilus shell chambers, the sunflower head seed pattern and the spiral in a galaxy, and in architecture the ratio of the length to the width of the Parthenon of Phidias, which is seen as the epitome of classical proportion. In other art forms such as fresco and oil painting, the proportions of the setting are often seen in the above ratio, especially in the work of Leonardo da Vinci and in the 20th century in the religious art of Salvador Dali. Closer to home, the human ear length needs to be 1.618 greater than the width to be said to be 'in proportion', as are the relationships between limbs and the ratio of the navel to the feet and total height, as in the work of Le Corbusier (Charles Edouard Jeanneret), in *The Modulor: A Harmonious Measure to the Human Scale Universally Applicable to Architecture and Mechanics* and *Modulor 2* (*Let the User Speak Next*) with the Red and Blue scales of proportion. However, Le Corbusier had to force his proportion system to appear as the Golden Ratio, given that his original premise was that the male figure in his drawings had to be British and not French in order to get the height of the figure with arm outstretched above equal to 220 cm.

The human eye sees proportion in interesting ways: what is pleasing to the eye generally is seen as beauty. It does not take long to see that something is 'out of proportion' in nature, and no more so than the frequent occurrences of the ratio on and within the human body. Artists and architects have used this relationship, often called the 'Golden Mean', for centuries to produce work that is pleasing to the eye.

The following derivation of the Fibonacci spiral contains some very basic algebra which I hope will not confuse the reader so early on in this general work.

Beginning with a square of side unit equal to 1, one of the sides is extended so that the ratio of the new line to the old side of the square is in the Golden Mean, i.e. the new total length is ϕ, being the original size of the square edge + the new line ($\phi - 1$). Now, completing a new square adjacent to the original, this will have a side of length $\phi - 1$. Again extending the side of this square so that the new length equals that of the original square, i.e. size $= 1$, the length of this addition is calculated from

$$1 = x + (1 + \phi), \text{ where } x \text{ is the length of the line extension}$$

Solving gives $x = 2 - \phi$. Repeating this process, the next line extension will join back to one of the corners of the original square.

This unknown (y) can be calculated from some of the previous lengths as follows. The initial extension line was of size $\phi - 1$ and part of that is the x found above. Therefore,

$$\phi - 1 = x + y = 2 - \phi + y$$

and so

$$y = \phi - 1 - 2 + \phi = 2\phi - 3$$

Again repeating this move, a square is formed with sides equal to y and an extension line z is drawn. This can be calculated as $y + z + \phi - 1 = 1$ (the side of the original square):

$$z = 1 + 1 - \phi - y = 2 - \phi - (2\phi - 3) = 5 - 3\phi$$

Again a square is completed, now with side z, and an extension line is also drawn. The length of this extension line is calculated from the knowledge gained before: $\phi - 1$, the initial extension line length, is equal to $x + z + q$, where q is the new length. Thus

$$q = \phi - 1 - x - z = \phi - 1 - (2 - \phi) - (5 - 3\phi)$$
$$= \phi - 1 - 2 + \phi - 5 + 3\phi = 5\phi - 8$$

Continuing this process, the next line length is r. As we know that $r + z = y$, then

$$r = y - z = 5 - 3\phi - 5\phi + 8 = 13 - 8\phi$$

The natural occurrence of the Fibonacci ratio is most famously seen in the developing chambers of the nautilus shell. Here each new chamber is 1.618 greater than the previous one as the crustacean grows in size.

In addition, the pattern of seeds in a sunflower head also show this relationship. Here two concentric spirals compete and grow as the flower head develops. The spirals increase in size as the flower grows and the spiral increases at 1.618 as well. On a grander scale, the spiral galaxy also grows at this rate.

These proportions also exist in human anatomy. Taking the unit as that distance from the navel to the feet, the distance from the navel to the top of the head is 0.618. Similar relationships are seen within this position within the body itself, e.g. from the total arm length and the shoulder to the elbow.

It is a simple step to link all these occurrences together and from there to suggest that 'natural' systems of growth should show this relationship in some form or other. Mathematically, the Golden Ratio displays interesting characteristics. Taking $\phi = 0.618$, the following becomes clear:

$\phi^2 = 0.618 \times 0.618 = 0.382$, a Fibonacci retracement level (see Chapters 3 and 5)
$\phi^3 = 0.618 \times 0.618 \times 0.618 = 0.236$, a Fibonacci retracement level
    (see Chapters 3 and 5)
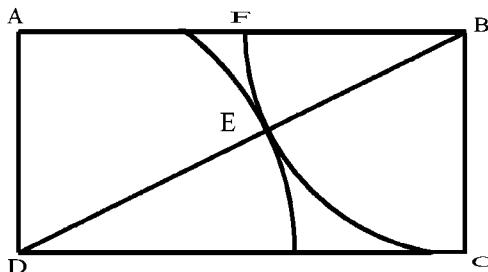
Figure 1.3

$1/\phi = 1/0.618 = 1.618$, a Fibonacci extension level (see Chapters 3 and 5)
$1/\phi^2 = 1/(0.618 \times 0.618) = 2.618$, a Fibonacci extension level (see Chapters 3 and 5)

It can therefore be seen that adding a unit to ϕ is the same as multiplying by ϕ.

A further method of constructing the Fibonacci ratio comes from simple geometry (see Figure 1.3). Take a rectangle with two sides of one unit and with two others of two units. The diagonal of this shape has the value $\sqrt{5}$. Taking an arc from one corner of radius 1, the diagonal is cut as shown. Then using an arc from the opposite corner with a radius measured along the diagonal to the previous cut, curving this to the long side gives the following:

Side AB:AF = AF:FB

These are exactly the proportions necessary to complete the Golden Section mentioned above. It can be seen from the above various derivations that the Golden Section, ϕ, is very important. It is the 'naturalness' and frequency of occurrence that gives the proportion to financial market analysis, as technical analysts believe that 'price' is the physical outcome of a natural system at any point in time, the natural system being the result of the action between buyers and sellers. This is covered in more depth in the next chapter.
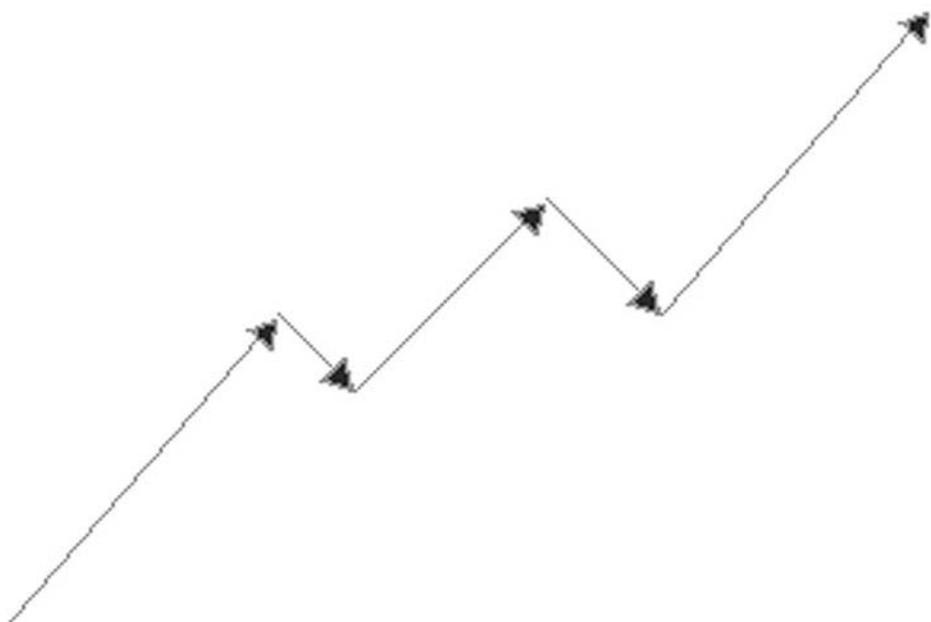
2
Application to Financial Market Analysis

What does a Fibonacci retracement look like? What are the particular values of retracements and extension? How is this ratio used in forecasting?

Before looking at the standard application of Fibonacci retracements and extensions, a brief philosophical and psychological detour is made. Market technicians rely on accurate and timely price information in order to complete their task, so what is 'price'? Group theory informs us that the current price is the direct result of the attrition between 'buyers' and 'sellers' at any particular time. As the trading universe is a dynamic system where some members join the group, some leave, some stay, some wait, this universe is ever-changing. There are two main forces driving market action: fear and greed. Some participants in the search for fair-value are frightened of either being left at the top of a market move or of being slow to notice a change in direction and miss out on an improved market action. Some others are greedy and see a positive move as the ideal time to join the herd and make easy money. However, is it as simple as that? Approaching the bottom of a perceived slide in prices, the general consensus changes subtly from those with 'news' starting to anticipate a recovery and those who are not afraid to lose a little in order to maximize an impending gain. Thus the herd of bears loses some members who move to a slightly bullish position. This is often reflected in a change in volume and in an increasingly oversold stochastic.

Many years ago an exponent of Elliott wave theory pointed out that the start of a small five-wave move signalled that readers of the heavyweight financial press/ research were looking at reversal and would be pleased to see slightly increased risk to the downside in order to be facing the right way in a recovery. It would be some

Figure 2.1

time before the next wave of positive investors joined in and even longer before the tabloid readers did so in the way shown in Figure 2.1.

Returning to the discussion on price, novices to the investment world are always amazed that for every person who thinks something is cheap and liable to rise there is someone who believes it still has some way to fall. That is the nature of an efficient matched market and despite the proliferation of research, up-to-date distributed news and instant communication methods, this is still the case. While each potential investor may be looking at the same direction as some other, all have different needs and it is these individual needs that are key to the development of a rally (or a fall) as the dynamic of the herd has to change over time as the final goals of the individual within the group are met – or refuted. This is clear from the herd mentality observed within the trending market, but participants have different goals and timeframes. The short-term bull may see the price objective as ambitious, and if it is not met within a particular timeframe then a reversal position may be triggered as this bull fails to attain the particular goal. However, a longer term bull may be able to weather the storm of the goal not being reached in that timeframe, and indeed not be overly panicked by shorter bulls reversing their position. This is one of the most interesting elements of technical analysis. Although the long-term objective may still be valid, shorter, perhaps opposite, positions may be of particular interest and it is the task of

a good technician to maintain the longer-term goal while taking a shorter-term finan-cial opportunity when it does arise.

It is my firmly held belief that price has to be at the forefront of everything to an analyst. Any studies that remove the intrinsic value of the price from any investment decision have to take secondary place to any triggers or moves that the price may make throughout the developing behaviour. This means that penetration of a con-gestive area of support, a trendline penetration, a price piercing of the moving aver-age is much more important than a change in a momentum indicator, such as the Relative Strength Index (RSI) or Stochastic. The technical analysis use of the term RSI is quite different to the Relative Strength used in other forecasting, such as a comparison of equity relative to an Index or Sector performance. Technical RSIs compare current price with the range of closes over the last n periods, e.g. 14 days. While having the ability to calculate and plot daily, hourly or more short-term momentum values on evermore powerful computers is undoubtedly helpful, ana-lysts have to remember that for over 100 years in the West and even longer in the East, successful trades continued to be made with only the more traditional tools available at the time, such as trend, pattern and wave. I cannot emphasise enough that price behaviour is critical to the overall outlook. To simply use the buy and sell signals from indicators to the detriment of all other techniques is as dangerous as a technical analyst avoiding approaching economic news and data. Although a tradi-tionalist technical analyst may disregard fundamental news in its entirety, I think it is wrong not to be aware and careful of violent swings in price data on an announce-ment of great fundamental news, such as an inflation number. Such economic data may come out worse/better/as expected, but each of these outcomes will have a dif-ferent effect on the market. An 'as expected' value corresponds to the traditional axiom of technical analysis: that all information is known to the market at the same time and is reflected in the price. However, a 'worse' or 'better' number will act as a shock to the market and price action will move to adjust to this particular infor-mation. It is interesting to see the price action as key economic data come out. This is best seen in Forex and futures markets where the price will move sharply in the seconds and minutes following news, then pause and then continue to move or reverse initial positions. The reason for this is shown in Figure 2.2. It has to be remembered that this all happens very quickly and more often than not the reaction

Announcement Initial Reaction Contemplation Reassessment

Figure 2.2

phase can reverse what directional move there was in the Initial Reaction phase as knowledge and explanation are digested by the trading community.

When I started out as a technical analyst it was seen as trendy to suggest reading Sun Tsu's treatise *The Art of War* and I am sure that most who said they had read it had not. I found the graphic novel version easier going! This is an early management book and looks at crowds and behaviour in interesting ways. Much can still be learned from this little book and with the more modern *On the Madness of Crowds* by le Bon, which has been superseded by excellent contemporary writings such as Tony Plummer's *Forecasting Financial Markets: The Truth Behind Technical Analysis*, which has an excellent chapter on the cycles prevalent within the UK Gilt Market, which is very useful for students of cycle theory.

Remembering that price is the outcome of attrition, i.e. the result of physical actions of buying and selling, it is only a short step to suggest that price is the result of a natural system, similar to apples being the result of the natural system of pollination, gestation and fruition.

In the previous chapter the derivation of the Fibonacci sequence, Fibonacci ratio, and Fibonacci number was described. Market technicians use some but not all of the ratios and look especially at 0.618, which is more commonly given as a percentage 61.8%, and 38.2%, which is simply 61.8% of 61.8%, and sometimes 24.6%, which is 61.8% of 38.2%. We shall use these in this chapter.

Taking a move in a commodity from a significant start and putting the end of the move at the high gives the primary move. This is of course equally true of a downmove. Once the top is confirmed and lower moves are gathering pace, it is safe to apply the Fibonacci retracement function of a screen-based package to the chart. Before the advent of screen-based packages, proportional dividers (commonly known as 'Fib tools') did the same job. The end result looks like Figure 2.3.

Most charting packages give defaults as 38.2%, 50% and 61.8%, but I prefer to add in the 23.6% retracement as well if I am looking at futures markets where the underlying instrument is an interest rate or a government bond. The very nature of these instruments means that sudden moves are uncommon and price action tends to be range-bound for extended periods of time. A move to 38.2% of a primary move would be substantial and if waiting for a move there, much potential profit could be lost. Smaller moves such as the 14.6% level I have found to be of little importance. They are often triggered in error, especially within markets showing fairly decent trading volatility.

INTERPRETATION

The initial Fibonacci theory states that reversing from the extreme of the move will encourage price activity to slide towards the first retracement (here 24.6%) and then if there is no support at that zone to slide to the next (38.2%) and then towards 50%

Figure 2.3

and then 61.8% before the 100% retracement at the origin of the move. While 100% retracements are possible, penetration of that level does not happen as often as probability would suggest. In cases of penetration of the 61.8% retracement support level, other market knowledge should be applied, whether of market technicals or 'technical' (analysis). A move of this size suggests major changes in the way the market is viewing new news and conditions and a better forecast of a price target could be possible using other more traditional techniques. Whenever I have come across a break in the 100% retracement level I have interpreted this as a global change in the price pattern and given it higher priority than, say, a break of 50%. In many cases a 100% retracement from an explosive extension move, as seen in the chart below, signals a balancing operation; i.e. the price will move significantly below the 100% retracement level in order to balance out that initial price move, which could now be seen as too steep relative to previous bullish moves or indeed overextended. This is most prevalent in market action where the move has been part of an extension into 'clear sky' where there has been no price history in the past. However, it has to be remembered that this balancing move will have a long way to go before calling a correction, as in many cases once the price trend has been balanced the primary move will restart, this time using previous price levels as encouragement to extend further. Figure 2.4 shows that effect very well.

Experience shows that if the retracement is near or at a quarter price then it has increased strength and should be considered a zone with both 'belt and braces'! This would mean that a break of support becomes significant and would normally see a

Figure 2.4

faster move developing towards the next Fibonacci support level. It is a good idea to use a raft of technical evidence when analysing a chart, not just the Fibonacci retracement. Indeed, as prices move through the Fibonacci retracement pattern often other patterns emerge, such as bear flags and bear pennants and sometimes small Head and Shoulders formations. These add to the effectiveness of the Fibonacci retracement system and help to improve the confidence in the underlying move.

Price move activity can be different at each stage of the move through the Fibonacci retracement pattern. Often the move from the high is gradual down to the 38.2% retracement, and from there a quick move to the 50% level, which then sees a period of consolidation while the market decides what is next. As 50% of any move is very significant, once this is taken out substantially then the move to 61.8% is violent and sudden, as shown in Figure 2.5.
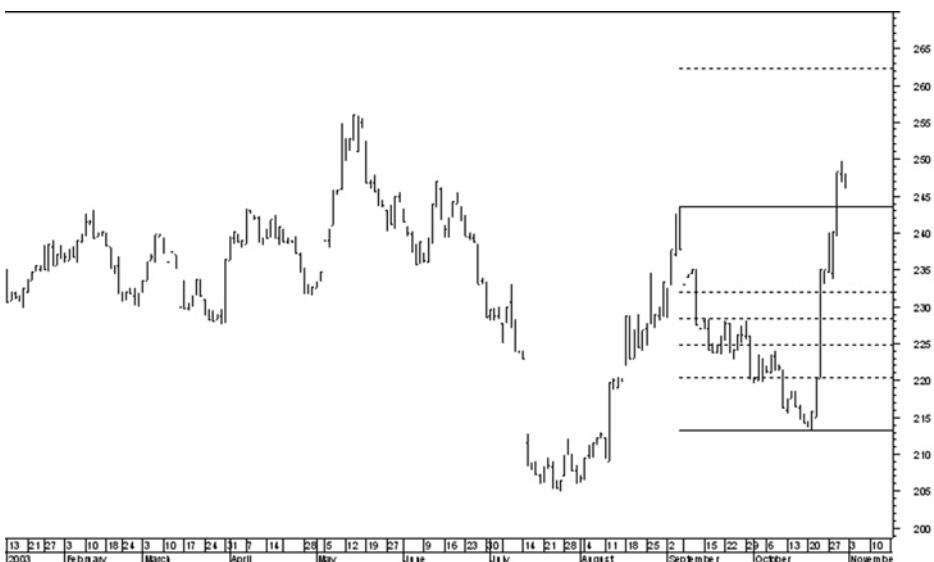
Extension values are normally seen in a return to the primary direction, i.e. the direction seen before application of the Fibonacci retracement pattern. Very rarely can additional sentiment or forecasting be done on a break of 100% retracement unless there is no previous price activity under the 100% retracement, as Fibonacci extensions are best suited to 'blue sky' price moves, where the price has never traded before. More traditional measures of support/resistance are of better use if there is some previous price action in this recovery zone. Once the price action has recovered in the direction of the primary move, extension levels can be seen at 1.318%, 1.50%

Figure 2.5

and 1.618%. This ties in nicely with the Elliott wave (Elliott wave theory) of exten-
sion and also with the underlying relationship between succeeding waves. Where the
recovery move is seen in a zone where there has not been price action for some time
(if ever), then a move to the extension level can seem enthusiastic and it is my expe-
rience that some deceleration in price move will take place as the crowd tests the
price ceiling continually. This activity could result in more formal patterns develop-
ing (e.g. bull flag), but caution has to be exerted if the price pattern changes from a
channel of some description (even if it is narrow and thin) or a flag to that of a pen-
nant (remember the procession of lower highs is critical here!), or indeed starts to
look overextended. This could see a 'V' top developing, and such tops are always
dangerous. The ideal patterns to encourage a successful move to a Fibonacci exten-
sion are a series of small bull flags, small in height but not too extended in the flag
cloth itself. I like to think of flags as physical flags and see them failing if the 'cloth'
becomes too wide relative to the 'pole'. This can be a fairly good tool! Successive
flag patterns also add some element of support to the extension pattern for the future.
However, a move beyond 1.618 of the retracement level is difficult but not uncom-
mon, but usually this comes from a sustained period of external shocks to the market
(see Figure 2.6) and shock plays havoc with the general behaviour of the crowd, a
subject to be covered elsewhere.

Failures in the application of Fibonacci retracements and extensions are not uncom-
mon, but an experienced technical analyst will use the whole battery of technical tools

Figure 2.6

in addition to Fibonacci and be able to gauge when such failures are going to develop. This could be something as simple as a narrowing in successive daily ranges for the price and indeed a period of choppy consolidation developing, especially if it comes to about the quarter price, as mentioned before. It is a careless technician who relies solely on one technical tool in forecasting.

I have found that overuse of Fibonacci retracements and extensions can be wasteful and there are indeed many occasions such as a sideways trending market where there is little to be gained from application of this tool. A good technical analyst will keep Fibonacci analysis for appropriate times, and this is really where there is little opportunity for a teacher of technical analysis to instruct. It is easy to pass on the knowledge and tools of the 'science' of technical analysis but very difficult to pass on the 'art' form. That unfortunately comes only with experience and someone starting out in technical analysis should if possible practice, practice and practice again with different charts, different markets, and different timeframes, whether hourly, weekly or monthly.

It is my experience that no one really knows all that there is to know about technical analysis as market conditions change frequently and the beauty of being a technical analyst is that it really is a different job every day. Skills and successful analysis learned and applied in the past are often not appropriate for current market conditions and all the weapons of analysis have to be applied and reapplied to match the current conditions. This is very similar to the back-testing of data when a good technical

analyst looks at how they could have improved forecasts. This is an excellent way to keep skills current and technical analysts should not feel that back-testing of data and outlook is a wasted effort. Much can be gained from reviewing old forecasts.

Detractors of technical analysis like to point out that we are often doing the same things on the same chart, but forget that subtle changes within the market, even on an intraday basis, mean that conditions have altered and some of the application tools need to be tweaked to make them worthwhile and appropriate in the current climate. While a trendline, being the simplest of technical tools, may not change over time, other tools have to be tweaked, such as changing the averaging period in a Moving Average or the days in an RSI or Stochastic chart, and even more so applying a wave count in an Elliott wave analysis. Elliotticians are always looking at the big picture and seeing whether the current wave and projections are still valid. This revisionary exercise is something that more traditional technical analysts should do more often.

Technical analysts rise or fall on whether they believe the basic tenet of their craft: that market knowledge is available to all at the same time and that action will be repeated over and over again in the future. This is easy to prove in the following simple example. As European financial markets are notoriously quiet during August of each year, there may be increased volatility, but in general volumes are low in commodity markets. This is a throwback to the traditional holiday period seen in France and to the days when the Bundesbank (the German Central Bank) made no announcement about an interest rate decision until the last week of August, so the period from mid-July to the end of August was traditionally very quiet. There has not been much change in this environment even after the creation of the European Central Bank (ECB) some years ago. It is the ECB which has the task of setting interest rates for the whole of the euro single currency zone. Looking around a dealing room in late July and August, a technical analyst sees that it is during that time that more junior members of a desk are left in charge as experienced colleagues take their vacations. Something as simple as having the Head of a desk out of the office for a period does have a knock-on effect on the types and range of investment decisions made by junior members as more aggressive positions usually get taken under the watchful eye of a more experienced trader. So although inexperienced traders continue to trade during this dull period, it is within tight parameters. This results in very little volatility during these sessions as we are aware of the two forces of market price action – fear and greed – keep the volatility in check. A junior trader is not going to take an aggressive position without having the confidence of a more experienced co-worker.

It is a similar situation in those empty days between Christmas and New Year when trading accounts are closed for the year end and little trading is done. However, this can be a very volatile time for markets as trading rooms are empty and no

one wants to make a bad decision just before the end of the final quarter; major squaring of any open positions therefore takes place. As technical analysts, we know that end prices are vital to our future analysis being successful. End-of-day, week, month and quarter all are important, but dim in importance to the end-of-year value. This is critical in long-term analysis, both technical and fundamental. Many sources of information store end-of-year values and keep them as the value for the whole year, rather than taking an average of the price or yield throughout the year and storing that as the 'annual value'.

Those analysts with access to really long-term history – decades and centuries – know that sometimes there is no historical value for an investment instrument except a 'yearly' value. It is the job of a good technical analyst to store price information that is accurate for succeeding generations of analysts to come. Historical price values are really worth their weight in gold, and hence it is very expensive to purchase from a third party. I remember several meetings of the Society of Technical Analysts (STA) where we decried the quantity and, more importantly, quality of price data that were available in the 1990s. There have been significant improvements on both counts since then but clean data, free of errors and spikes in price, is still a far-off goal and it is common to find a 'network' developing where certain individuals maintain and check particular instruments and sectors and can be freely called upon to share such price information. Experienced technical analysts keep their own data 'offline' in some format as it allows them to correct, alter, rebase and otherwise change the data to keep them as the most error free. This is a practice that should be encouraged.

Many years ago I was a member of the Foundation for the Study of Cycles, an American organization that prided itself in holding really long-term history. The Foundation no longer exists. Some of these data were used in Sydney Homer's *History of Interest Rates*, a book I highly recommend as it covers occasions in financial markets where turmoil was at an extreme, e.g. the move from the Usury Laws of the Middle Ages to the fall of the Weimar Republic in hyper-inflationary Germany in the 1930s. The Foundation provided discs of the price of silver from ancient times, which could be used as an indicator of 'real' interest rates from a very long-term perspective, but had only end-of-year values. Silver was used for many centuries as the capital and interest of a loan or borrowing and had to be repaid. It is therefore a fair replacement for interest rates during that time when there was no published interest rate and this 'replacement' can be effectively used. See Appendix 1 for a further discussion on the creation of synthetic price history.

A former guru of UK technical analysis often gave my learned Society lectures on some very long term forecasting in the UK equity market and spent his later years searching for price history of some old shares from varied sources. It has to be remembered that London and Amsterdam have had equity exchanges for hundreds

of years and although most of the companies and tradable instruments available then are no longer used now, general prices can be used as a substitute for what we would now call 'sector analysis'. Searching for price history is an invaluable lesson to contemporary technical analysts who have lost the need to store and check current prices and who now rely on the major price feed sources for accurate information. In my experience, very few professional technical analysts now store long-term history and are content to use that amount of data provided from online charting packages. I believe this will have a detrimental effect on technical analysis in the long term. The proliferation of inaccurate price spikes on intraday charts shows that errors do get through and, although they are visible, it can take a price source some hours if not days to alter these spikes.

Take, for example, the move to screen-based trading as live trading pits were starting to close in Europe. I remember well one morning watching the price of the Notionnel (the 'NNN', which is a 10Y French Government bond future and at that time the largest traded contract in the European futures markets) contract on the MATIF (Marché à Terme International de France) collapse in a matter of seconds. The size of price move had never been seen before on any historical basis and panicked telephone calls to various price vendors did not come up with an answer as to why this uncharacteristic move was taking place. This was a major shock to the market. Later in the day it was discovered that a trader was leaning across his desk to talk to a colleague while his palm was resting on the 'sell' key on his keyboard and hence the huge move. It took many weeks and investigation by independent accountants to come up with a report on how this could happen. In the meantime, analysts were left with a huge price spike to deal with and not only that, but the extent of the extremes of price action that day meant that inaccurate values were being calculated on the Stochastic charts and other momentum measures that use the Day High and Day Low in their construction. As the analyst for this contract, I decided that until the results of the investigation were known stochastics and any patterns resulting from that particular day should be ignored and more traditional methods should be used without altering the price spike itself. Naturally, it would have been seriously wrong to ignore the price move from the chart and any manual correction to the price by an end-user technical analyst. If I had changed the price myself I would have been doing nothing more than guessing the correct price action for the day, which would be wrong. Eventually the correct agreed price range for the day was given and all charting systems and databases were corrected, but that was not for some time after the event and in the intervening period it made analysis of the NNN very difficult.

Such occasions are uncommon, but when they do occur this causes major panic in the market. These events are called 'undiscounted news'. I had previously had experience of events such as these where the price shoots out of a range and huge

ranging days develop, but these had been in moves associated with political uncertainty, and usually came about at the opening of a market where an event of extreme importance had happened overnight. Such events were usually news of a coup or surprise election news. European-based technical analysts have the misfortune of having many distinct countries to analyse, all with their own election timescales, and surprise election results are not uncommon.

I remember working overnight for the results of the UK General Election in 1992 and watching the Bank of England begin operations at 3 a.m. to the surprise of European traders, who were still in bed, but to the delight of Eastern investors, who purchased gilts in the light of the re-election of a Conservative and Unionist Government in the UK whose economic plans were well tried and tested. At that time the company I worked for provided a screen-based Point and Figure chart for the Long Gilt Future and once the futures exchange had opened the price shot up significantly and I was left to draw a Point and Figure that only had one column to display (the size of the delivery screen was notoriously small and limited in the number of characters it could display). All there was to view was a column of X's, which gave little of value to the subscriber that morning.

The early 1990s were a difficult time to be a technical analyst, especially those looking at currency and interest rate markets. Much of Europe was tied within the 'Exchange Rate Mechanism' (ERM) as a precursor to monetary and political union as envisaged by the European Commission. This meant that those domestic currencies were to be constrained within a mechanical system that allowed only small fluctuations from the median currency from other countries. This was an excellent time to be a speculative trader as time after time during the summer of 1992 specific currencies which were considered 'weak' came under attack and hence had to see government intervention in the form of interest rate adjustment or devaluation take place. The most spectacular victim of this was the British pound (known as 'sterling'), which was forced out of the Mechanism in the space of an afternoon. It is a well-documented fact that finance ministers in the UK were not on the ball that day. This caused huge moves in the sterling money market, sterling futures and currency to take place as the market was without direction and control, causing violent moves on the back of rumour and speculation (see Figure 2.7).

Up to that time I had been a happy Short Sterling (the interest rate future based on UK money market rates for sterling) technical analyst but as the day progressed I found myself having to glue another piece of chart paper to my neat little chart on my desk as implied rates moved ever closer to 15% and then towards the close to have to put one on the bottom as rates collapsed once the exit from the ERM was announced and completed. This was the straw breaking the camel's back for me and so I stopped maintaining paper charts from that day. Thankfully this coincided with huge improvements in the reliability of charting packages and a fall in the price of
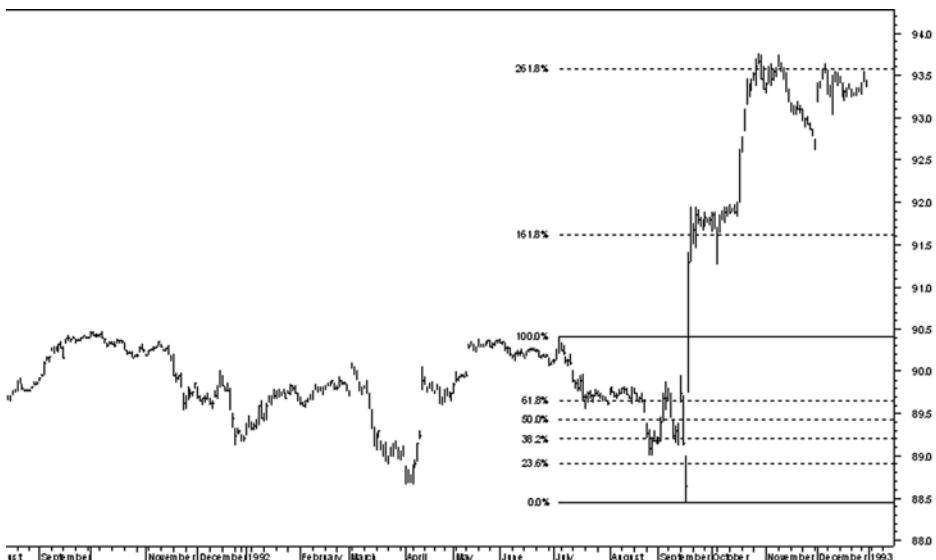
Figure 2.7

each system, and these became viable for traders everywhere to use. However, the lessons I learned that afternoon were invaluable, as I had never had much call to use Fibonacci extension levels in previous analyses.

Fibonacci extensions and retracement levels are excellent tools to use in environments where price action becomes uncharacteristically violent. I had my first chance to use Fibonacci extensions on the afternoon of the sterling/ERM crisis, which although they did not last long and offered very little resistance to the violently moving Short Sterling future, they did give initial targets but became less important as the price extension went through the 2.618% level and looked to be ready to attack 4.618%, which is extreme in any situation. However, at that time they at least performed a function of giving an objective, even though that objective was to be short lived. The subsequent collapse in the following trading sessions did follow the Fibonacci principle as key retracement levels where the new high was used as the extreme of the move.

It was discussed at the start of this chapter that price action is the result of the attrition between buyers and sellers and that fear and greed are the underlying influences in price action. Once the uncertainty (political and economic) had been removed to a major extent then the crowd behaviour became more rational and focused on what was going to happen next. With prices falling (interest rates could not be sustained at such cripplingly high levels) interest rate policy was seen as removed from the constraints of the Mechanism and more traditional pressures on

domestic rate policy were envisioned. This was in fact the case and future interest rate moves in the UK were mainly politically driven up until 1997 when the Bank of England was given 'independence' from the UK Treasury (finance ministry) and given the remit of maintaining price stability (within bounds), and was deemed to be free of political influence. Having an instrument that is 'free' to move and has had the effect of political expediency removed as one of the factors driving the price made analysis a little easier, but just as exciting.

Why does a technical analyst use these particular retracements? The 38.2% and 61.8% retracement levels are seen as the primary levels for analysis, with 38.2% slightly less important for a technical analyst than the 61.8%. From Chapter 1 we know that 38.2% is 61.8% of 61.8% and so on. A move from the extreme towards the origin level heralds a change in crowd sentiment, and unless the extreme price is at a significant high there may be some reluctance to see the primary move from the origin starting to reverse. Remember that at significant highs and lows the trend may have been in existence for some time and may have seen improvements in volume coupled with this. A change in direction is very difficult to sustain and those taking profits may be limited as the sentiment remains intact overall as the 'greed' pressure is still evident and driving price sentiment. However, once a corrective move starts to develop and there has not been an attempt to limit the extent of this reversal move then the asset may start to look vulnerable, especially if this is coupled with extremes in the stochastic chart. Real reversal is only seen once congestion is taken out and from there the move towards the first major retracement is seen as confirmation.

Look at Figure 2.8. Here is a prime example of a rally, which has been ongoing for some relatively long time. There has not been a significant profit-taking move during this time and the instrument remains bullish up to June 2003. However, the price is reaching extremes and as the associated stochastic chart shows, the over-bought position there is a cause for concern. The choppy consolidation about the high should be enough to deter new bullish positions being entered into and wise bulls would need to see a break in the congestive resistance before being convinced that the rally has not run out of steam. There is an element of 'wait and see' here, with participants ready to bail out on a move lower. As the chart develops the price action is seen as being less volatile, as is shown by the succession of smaller daily bars. The bullish sentiment is coming to an end.

Look what happens after the 38.2% support level is taken out (Figure 2.9). There is a panic now as long positions look to be over and the correction is developing. This has triggered an increase in the size of the daily bars and unless there is some strong support offered about the 38.2% retracement level and before the 50% retracement level there is an increasing risk of even further slippage. It is not uncommon to see a small bounce in either of these areas but the analyst has to be aware that this could be short lived. This is the ideal time to look for a small Head
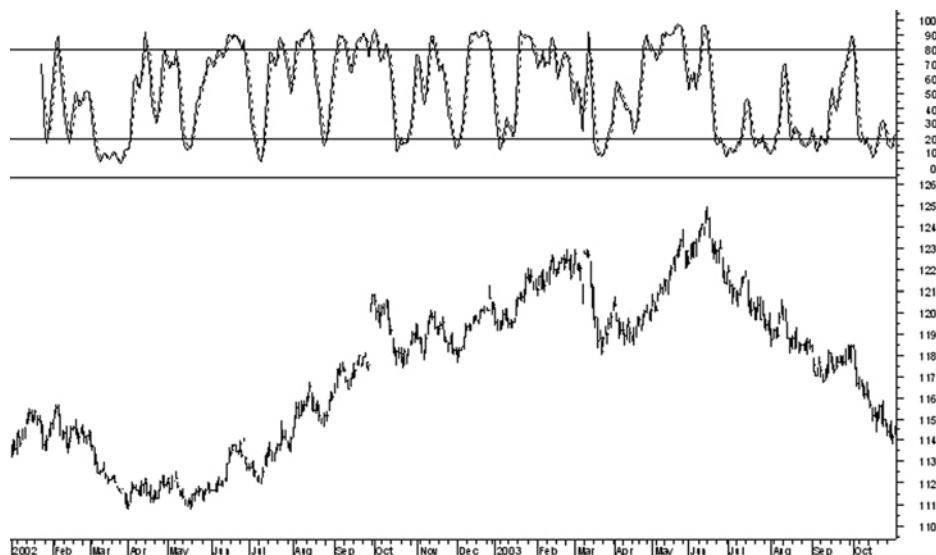
Figure 2.8
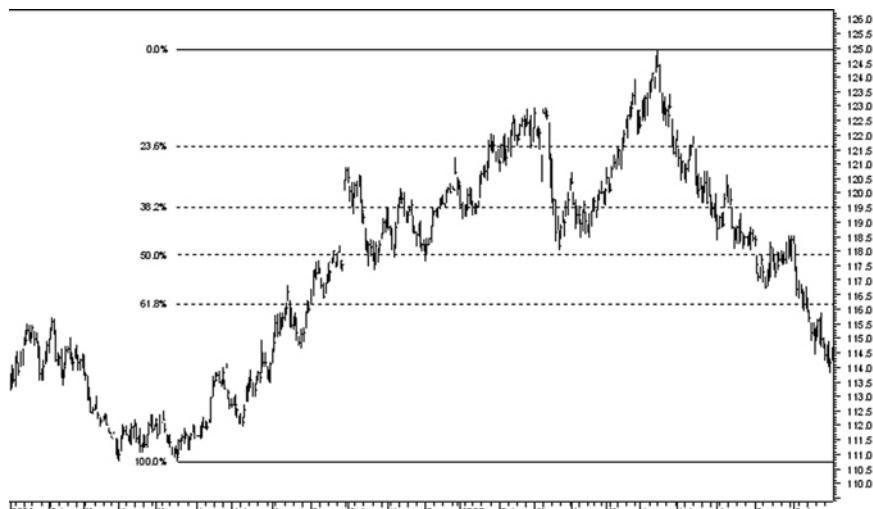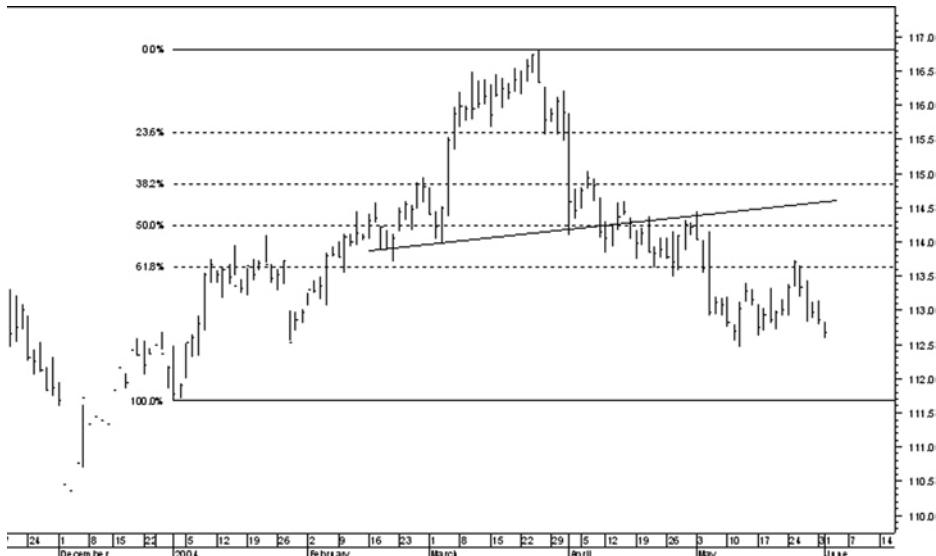
Figure 2.9

and Shoulders pattern. These are not always as shown in textbooks, i.e. with a hor-
izontal neckline. Those theoretical patterns are few and far between and it is more
likely that the neckline of the Head and Shoulders pattern is sloping in some way,
even if the slope is very extreme. In my experience, the identification of a Head and
Shoulders formation is not always correctly done, especially with inexperienced
analysts. This is a very powerful pattern and analysis weapon, and although time has
to pass before the pattern is confirmed, an experienced analyst will be able to see the
pattern fairly early on in the development and keep an eye on it as price action
develops. In any case, this just adds to the overall evidence for correction lower and
in many cases will accelerate the move. An explanation for this is that arguments are
increasingly valuable as evidence accrues and the more evidence confirming the
price direction is validated, confidence in the outcome will increase.

Figure 2.10 shows events coming to fruition as the particular instrument gathers
momentum and the correction moves very quickly through the pattern. Notice here
the attempted Head and Shoulders formation which adds to the bad news.

Application of Fibonacci vertical retracements is not difficult in itself. Problems do
arise though and these are covered in succeeding chapters. However, the interpreta-
tion of Fibonacci retracements, fanlines, arcs and timelines is the same – a break in
one of the lines suggests a move towards the next one and so on. The skill in apply-
ing Fibonacci analysis correctly comes from knowing not when to apply it but when


Figure 2.10

not to apply it. Any price move could have a theoretical Fibonacci corrective pattern attached to it, but only some kinds of move are appropriate to use. When I carry out my analysis, I start with simple things such as trend and channel, then pattern, then Fibonacci and then momentum. Some analysts start elsewhere with a different hierarchy. I find this one works best for me. In the chapter on 'Total Analysis' (Chapter 8) this is looked at in further detail. I mention it here because pattern is more important to me than Fibonacci and if I see a corrective pattern such as a successful Head and Shoulders playing out I would use the techniques for this measurement of objective rather than go to the next stage and apply Fibonacci technical theory. I feel that once I have the direction and feel confident with this and have a price objective I am satisfied and would probably then look straight to momentum and miss out the Fibonacci stage altogether. It is only in puzzling situations where no pattern is visible that I would use Fibonacci before the momentum stage.

Fibonacci analysis can stand alone and work well, but I believe that it is the construction of a view or outlook from using many different techniques and getting as much confirmation of the view as possible that leads to a successful and profitable outcome.

3
Other Applications of the Fibonacci Retracements and Extension

A look at what price action is (the graphical and financial outcome of the attrition between buyers and sellers) and what drives market action (fear and greed, the two main forces in price action).

So far we have looked at vertical retracement using Fibonacci relationships. There are other interesting tools, which are based on some of the same Fibonacci values. This chapter will introduce them in some detail while later chapters will look at some of the common errors in applying these methods and some of the drawbacks. It is unfortunate that there are no hard and fast rules as to the application of some of these patterns, as sometimes they will work out fairly well and sometimes be totally useless. In Chapter 8 on 'Total Analysis' some ways around this will be discussed. For now, this chapter will look at a cross-section of asset classes and try to identify if and more importantly when fanlines, arcs and timelines should be applied. It is not as simple as in the case of vertical application seen in the previous chapter, as the addition of an element of time adds some key differences and indeed problems to the analysis. Vertical retracement patterns are the most commonly used Fibonacci patterns in technical analysis. They are easy to construct both by hand and proportional divider and on screen. They remain useful as long as the price action is within the pattern no matter how much time has elapsed. However, there comes a stage, especially when the price construction starting values are within a move or correction rather than at historical high and low, when the pattern falls out of use. That

usually comes once either the 100% or 0% retracement levels have been penetrated, but could also come if the price moves sideways for some considerable time and even more so if the price starts to form a continuation or reversal pattern, such as a triangle or flag in the case of a continuation and Head and Shoulders in the case of a reversal pattern.

The vertical retracements discussed in the preceding chapter are simply constructed using extremes of a price move, i.e. the origin and the ultimate price extreme of a move. There is no difference in this vertical measure whether the move took only a matter of days to complete or weeks or months. The timing of the retracement move is of little importance in this case as the analyst is focused on the general move itself. This is not the case with those tools that have time attached. The vertical retracement pattern is a fairly scientific application and falls or succeeds on whether the analyst has used it appropriately. In this chapter we shall see that the 'artistic' addition of fanlines, arcs and more importantly timelines is not so clearcut. Indeed, there are problems and key issues raised in this and succeeding chapters that will call into question the appropriateness of some of these patterns throughout the life of the asset. It will be shown that while the pattern works in some asset classes, it fails in others, and indeed in those markets where it does work, it may not work for very long. This is the application of the art of technical analysis, being able to tell when a pattern has ended its usefulness.

In my professional career as a technical analyst I have used fanlines frequently but tend not to use them too much as support and resistance levels in themselves. I much prefer to use them for support and resistance while the price or yield is within the pattern and when the price is far from the fanline, using it as a rough measure of the sentiment behind the move. If the price is moving roughly in parallel with the 38.2% pattern I am content, but when it moves steeper and indeed more importantly shallower than the 38.2% fanline then I have cause to get excited. Moving steeper shows a change in sentiment as the primary move has gained further participants, i.e. the group goal has attracted further converts. This is encouraging for analysts and makes forecasting a little easier. I would then apply further more traditional tools, such as momentum, to my analysis. In the case where the price is moving shallower than the 38.2% fanline it marks a change in the group dynamic; the participants are no longer confident in the original goals. It is critical that the analyst be aware of the group dynamics of participants within the marketplace. Where is the current price relative to a cycle or, more clearly, where is the price relative to an Elliott wave pattern? This latter position is clearly much more important than is realised. Many fans of Elliott wave theory are content to have a wave count and feel confident in it without looking at the bigger picture, i.e. what the sentiment changes are at each stage of the wave. The rules of Elliott wave theory are relatively straightforward – five up, three down – but each part of this eight-wave pattern is the result of major changes within the overall group dynamic. I spent many years working with an exponent of Elliott wave theory in whom I had extreme

confidence in his wave count, but I have come across other practitioners who are not so convincing. The difference in analyses is striking between someone who has a good eye for the wave and someone who has not. A good Elliottician, like a good traditional technical analyst, keeps the art form of technical analysis ready to hand. After all, technical analysis whether we like the phrase or not, is just interpretation of a 'picture' and as is the case in traditional art, interpretation and criticism is not objective. There are good, bad and indifferent professional traditional technical analysts and good, bad and indifferent hobby users. There are no indifferent Elliott wave users; they are simply bad or are gurus, and that is the danger for an outsider. How can you tell that the Elliott wave theory count is a good one? How can bad errors and poor analysis be avoided? I believe that it is only through constant application of all charting tools, moving averages and momentum, Fibonacci applications and even Gann theory, constant vigilance for patterns developing and playing out that an average analyst becomes good. It is a similar position for exponents of Elliott wave theory; they have to practise counting waves of all degrees in order to get better. A traditional technical analyst is comparable to a medical general practitioner; the Elliottician is the heart surgeon of technical analysis. There are no shortcuts in technical analysis. It is fairly easy to read a couple of books, absorb the theory and practise on a few charts, but when it comes to the crunch, experience is everything and experience shows. As an examiner for the Diploma in Technical Analysis as offered by the Society of Technical Analysts Ltd in the UK, it is patently obvious when one of the candidates has done more than read a few books and practised only a little. In the past a student of technical analysis could get away with limited practical knowledge, but that is not enough now. Contemporary technical analysts have to be conversant with not only the easy subjects of trend, pattern and momentum but also have to know some Elliott wave theory, Point and Figure analysis and retracements. This book does not look at some of the other kinds of charting prevalent today such as Japanese Candlesticks and Market Profile™, which are worthy of several volumes each. Technical analysts have to be open to new ideas and ways of forecasting and that is why I believe the job of a technical analyst is so interesting: each chart, each day is a brand new challenge. There are very few careers that can truly say that the work changes daily, as is the case in technical analysis. The 'game' of forecasting and beating the market needs enthusiastic participants with as much artillery in the form of tools and techniques as possible.

I have tried in this book to avoid the use of charts that display convenient patterns and which conform to the theory of patterns or indeed of Fibonacci. It is much more realistic to use charts where things go wrong, or at least not to plan. These are real-life examples of the issues and problems facing a technical analyst on the job: nothing is the same as read in some technical analysis introductory books – real life is much more exciting and involved. Patterns do not always play out to their theoretical objective, prices often recover after a break of a significant trendline and advanced analyses such as Fibonacci, Elliott and Gann are difficult to apply. I have to put up my hand to say

that I find Elliott wave theory very difficult. It is too time consuming for a busy analyst to use too often, especially if the investment timeframe is very short. I prefer to use tools that the average reader can understand, such as pattern, moving average and trend. It is only after developing an argument from these tools that I would look at Fibonacci in any shape or form, and then write about them simply as a way to show that I have constructed a logical view from traditional tools and used more advanced ones as confirmation. I like to think of this method of analysis as similar to that done by Charles Dow; looking for confirmation of an outcome in Railroad Average from another source, the Industrial Average. It is my bitter experience that a technical analyst will lose readers as soon as the analysis moves away from basics, so the forecast and target and stop levels have to be described from simple tools in order to get across to the greatest number of readers, before displaying advanced skills that only a few aficionados will understand, or indeed care about.

That is not to say that advanced studies outlined above are not important. On the contrary, they are key in the development and construction of an investment argument. However, the technical analyst has to understand this when writing for others who may not have the knowledge and understanding of a professional technical analyst. It is very rare for peer-to-peer analysis to be seen. Journals and books on technical analysis have a very narrow readership and some of our jargon does not make it out of our closed groups into general investment discussion areas. It is the job of a technical analyst to gain the confidence of traders and sales people by using simple and easy to understand views and also, over time, to display some of the more difficult methods that can be used. In a trading environment technical analysts can suffer from the 'boffin' label, which can be unfortunate and ultimately destructive. It is our job to interpret a chart and then to translate that interpretation into a language that is understood by the non-professional technical analyst, keeping it as simple and jargon-free as possible. Anyone can draw a trendline; only a few can interpret Elliott wave or Gann theories.

Some of the problems a technical analyst encounters, especially with the application of Fibonacci tools, are looked at in much greater detail in succeeding chapters, but for now this chapter will look at the simple construction of fanlines, arcs and timelines, with a discussion as to what effect the addition of time will give to successful analysis.

FANLINES

Fibonacci fanlines are the simplest form of pattern. Construction follows very clear rules. Taking the extremes of the move as before (the origin and the significant high), but instead of drawing horizontal lines as in the vertical retracement, the following process is used.
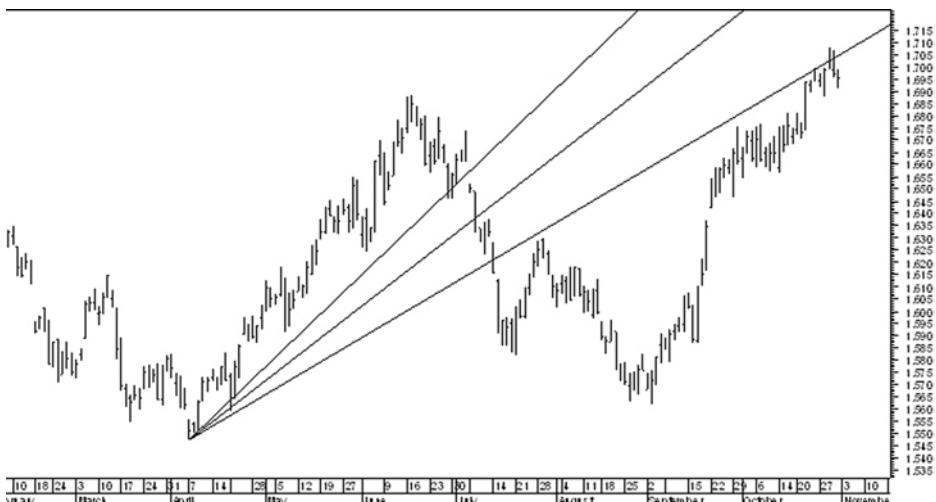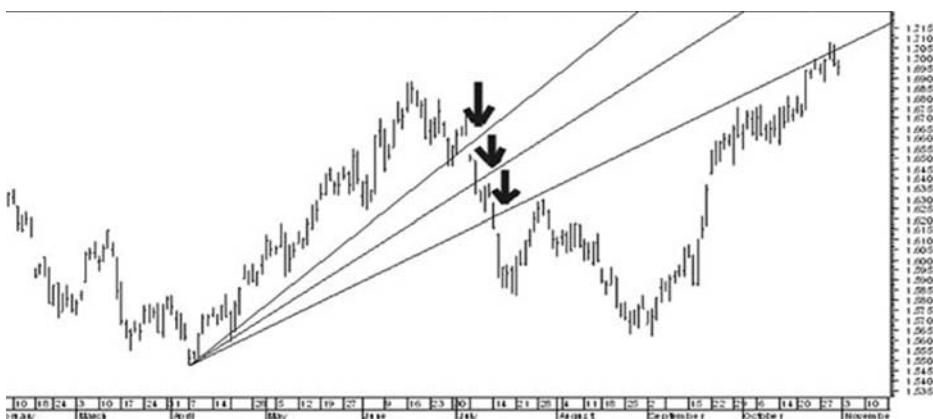
Figure 3.1

Imagining the move as the hypotenuse of a right-angled triangle, the opposite side of the triangle from the origin should give the vertical size of the move. On this side the Fibonacci values should be plotted (again usually 38.2%, 50% and 61.8%). Lines starting at the origin and passing through each of these points in turn are drawn and extended through the intersection points. This gives the patterns its name as they look like fans (see Figure 3.1). These lines have added an element of time to our original analysis, so what can be gained from this? Each of the lines (also called speedlines) increases in value as time progresses when drawn from a low to a high and decreases in value when drawn from a high to a low.

When the price action slides from the extreme high towards the 38.2% fanline, as the days develop the line gets higher and higher. A break in this line will then focus attention towards the next fanline, which is also increasing in value on a daily basis, and so on through the pattern. From Figure 3.2 the effect of the fanlines can be clearly seen as a tool for marking support and target values. The arrows show the 38.2%, 50% and 61.8% retracements of the vertical move.

The reversal from the extreme high saw the 38.2% fanline attracting initially. This acted as the centre for some consolidation and a potential recovery at that time. As we know there has to be a significant break of any trendline and as it is assumed that Fibonacci retracements and fanlines are glorified trendlines, then the same rule applies. The true break of the fanline came after the failed attempt at a positive bounce and it can be seen from Figure 3.2 that on the day of the break the 50% Fibonacci fanline gave a very strong objective. Although this was not taken out that day despite the

Figure 3.2

violent nature of the move, it did start another period of consolidation about the fanline, just as price action had at about 38.2%. Here a little flag (bearish) has been formed on this occasion, which adds to the evidence of a further bearish move developing. Once the consolidation has been seen to end the contract slips again towards the 61.8% fanline, but this time breaking out of the zone is more difficult and a wider band consolidation develops. This is not uncommon, as the previous two breaks of fanline support have come after periods of consolidation. The break lower did come but not with a bear flag, which would have encouraged major slippage to develop. This time an unconventional pennant or even a little triangle developed, both patterns taking the steam out of any major bearish move. The bounce from the support zone at levels seen in the previous November looks substantial, but here we can use the fanline to see if it was significant. It would be problematical to use a vertical retracement level and wrong in many cases, as those levels involved in the vertical retracement belong to the extremes of another move. The fanline remains intact here and would continue to extend, allowing the analyst to continue to use them a little longer. In this particular case, the extended 61.8% fanline offered extremely strong resistance to the move and was successfully defended; slippage resulted from the failure to break through that line. This is a very interesting chart and shows the many advantages for the analyst to apply. By the end prices from this particular chart it can be seen that the contract has moved significantly from the pattern, so it would no longer be useful. At this stage, if the base seen forming at the end of the chart were successful then reverse fanlines would be drawn as shown in Figure 3.3.

In order to see the bounce and successful recovery the contact would initially have had to attack the 38.2% retracement level and from there to move on towards the next congestion and fanline zone. The Fibonacci fanline pattern is an excellent
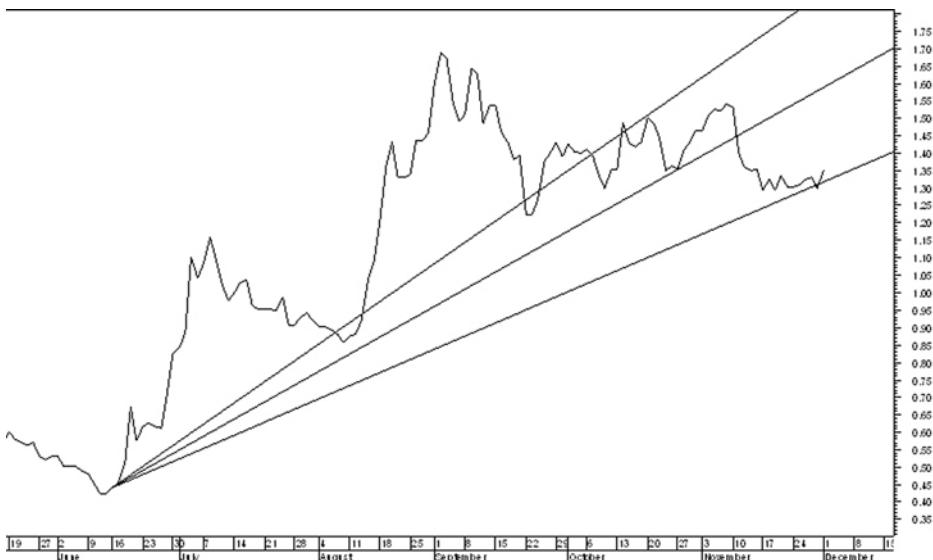
Figure 3.3

way to use retracements coupled with time. However, I have found that the further price action is away from the origin and extreme price then the less valid this pattern becomes. This is the same issue I have with Gann fanlines (see Chapter 9).

Let us have another look at application of the fanline principle, this time looking at a commodity that is notorious for trending sideways for extended periods of time. This is the LIFFE Euribor contract and is the futures contract based on the three-month LIBOR (London Interbank Offered Rate) for euros. Here the pattern is constructed from the low in June and the high in November. Notice that the contract drifts aimlessly after the break of the 61.8% Fibonacci fanline is taken out (see Figure 3.4).

Figure 3.4
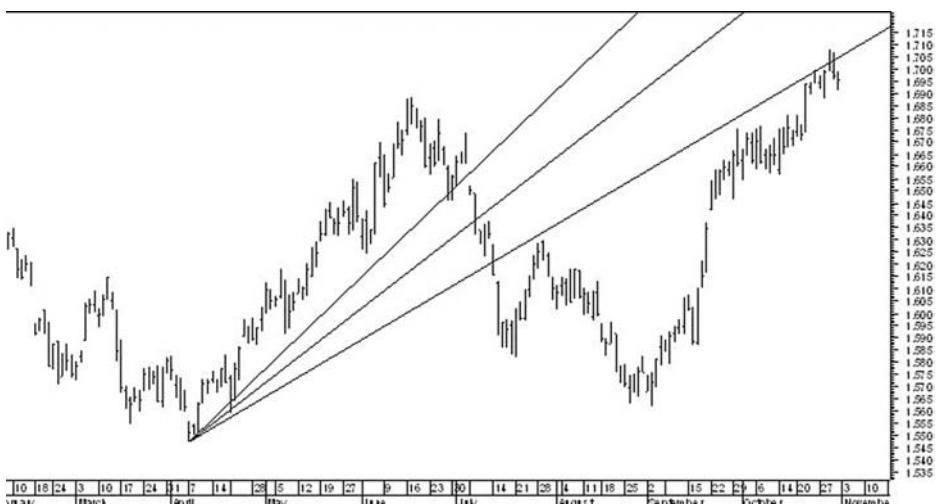
Figure 3.5

In the next examples, my preferred use of fanlines is seen. This is in yield and yield spread analysis. Taking the ten-year Gilt yield first of all, the pattern is constructed through the low in June and the high in September 2003. Notice that the pattern acts as a strong support throughout the following weeks and suffers only minor pressure as time progresses. In this case the pattern is favoured to act as a long-term support to the developing rally in the yield, even though this rally is fairly gentle (see Figure 3.5).

In this example of the ten-year yield of the Japanese Government Bond (JGB) the pattern has already been under threat with the break of 38.2% in October triggering a sideways move that almost breaks the 50% fanline in late October. At this time the support holds, which is a good signal for a spread bounce, but this is limited. The analyst would see that the congestion from mid-October will offer very strong resistance to yield recovery and in this case see spread narrowing developing once that zone holds. This time the 50% support breaks and sees a gradual drift towards the 61.8% support again. Notice the repeating behaviour of the yield during periods after the break of the fanline: gradual drifting towards the next support. This is often seen in yield and yield spread analysis (see Figure 3.6).

Here is an example of a fanline being used in commodity analysis, this time of continuous corn. These patterns can be applied across a whole range of instrument types very successfully. This is constructed through the high in September 2002 and the July low of 2003. Notice again the consolidation before the initial break of the 38.2% fanline. This can be thought of as 'revving the engine' for a break and is fairly common.
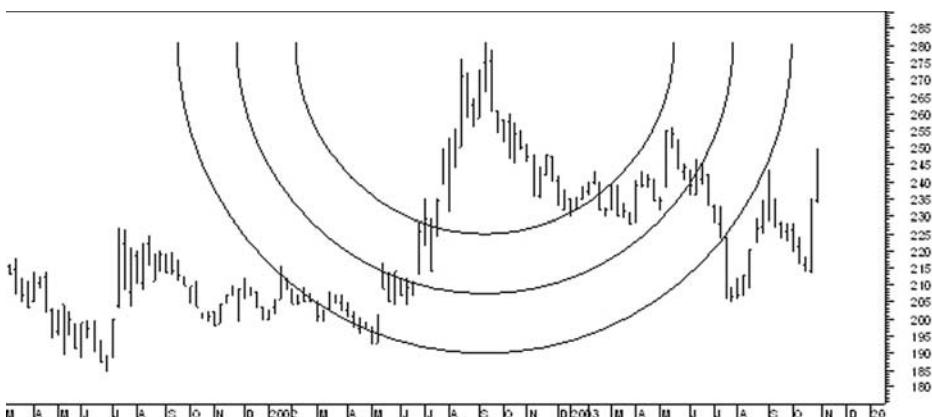
Figure 3.6

This is in contrast with the failed attempt at the 50% fanline, which although it was taken out it was only brief and the contract slipped once again into a consolidative phase. In technical analysis consolidative phases tend to be horizontal in nature but here is a rare example of consolidation about a sloping line, this time the 38.2% fanline. This is not indicative of preparation for a bounce but describes the underlying sentiment, which is undecided. It is only later that the slide from the 38.2% fanline comes under threat as consolidative support from the July–August period of 2003 supports the long consolidative zone from early 2002. This goes relatively unscathed and results in a sharp bounce with a small flag at the 50% penetration before further gains through the 61.8% fanline at the end of October (see Figure 3.7).

PROBLEMS WITH FIBONACCI FANLINES

A more detailed look at Fibonacci fanlines, their properties and drawbacks, is looked at in succeeding chapters but for now it is enough to say that a break in a fanline will be similar to that of breaking a vertical retracement level – the next one in the sequence will be seen as a target zone. Whether this lasts for very long as support or resistance is not suggested, only that the price will move to that level. Indeed, as the price moves towards the fanline, it could be that the fanline will move up towards the price (remembering that the pattern moves as time progresses) and this could see the fanline cutting through a period of consolidation and continuing higher. This would mean that the fanline changes from being a supportive target zone to a resistance level as time moves forward. If that is the case, then the effectiveness and indeed usefulness of the fanline is

Figure 3.7

called into question, for if it did not work very well as support it would not work very well as resistance. The same is true for fanlines starting off as resistance and becoming support. The analyst has to decide whether the price is moving towards the fanline or if the fanline is moving towards the price. This is fairly easy to see on charts where consolidation in the price has been developing, as this is suggestive of the fanline moving towards the price. There is not really much that can be done in this case. However, any penetration of a fanline may be the catalyst for improved price activity, and in many cases where price has simply drifted through a fanline the resulting action has seen the price wake up and move a little more dynamically.

FIBONACCI ARCS

This is a novel approach to using the power of the Fibonacci retracement. The construction is similar to that of the fanline above, but instead of drawing straight lines from the origin through each vertical retracement, semicircles are constructed using the origin as the centre and the vertical retracement level as the radius of the circle. It is generally enough to draw only a semicircle, hence giving rise to the name of the arc pattern.

Taking the example of corn in Figure 3.7 and constructing a weekly chart, the pattern is constructed from the low in June 2001 to the high in September 2002. Remember that the pattern of semicircles depends on the scale of both time and value. Here the contract has found very strong support at the 38.2% arc support in November 2002 and again at the 50% support in March 2003 and later in May of that year. The arcs give fairly good ideas of target levels and supports throughout the
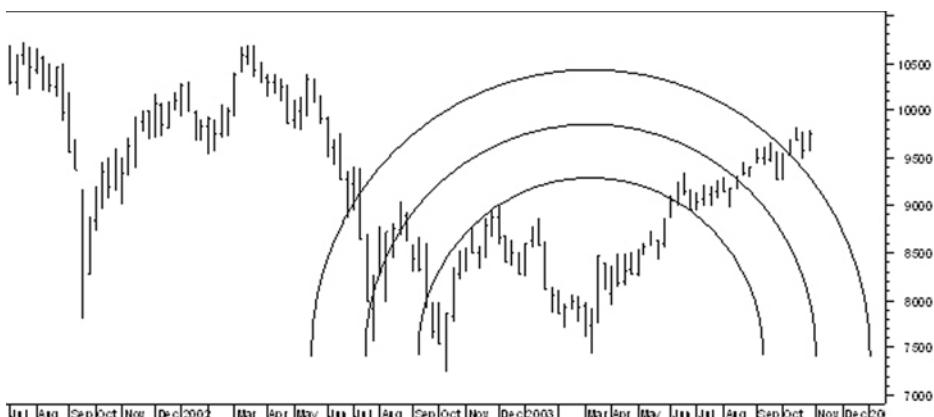
Figure 3.8

development of the price, even after the successful penetration of the 61.8% support level in July 2003 (see Figure 3.8).

In this example of the Dow (Jones Industrial Average) the recovery in the index has seen key levels under attack within the pattern. Again the arcs are good indicators of target and objective and notice that the pullback from the 50% arc in May 2003 did not go as far as the 38.2% arc, which should draw attention to the average starting to bounce higher once again. The break of the 50% arc comes after a short period of consolidation and sideways action, but once that happens then the 61.8% arc is seen as objective (see Figure 3.9).

Figure 3.9

PROBLEMS AND ISSUES WITH FIBONACCI ARCS

Arcs are best drawn by hand, but this is not always possible. I have found some packages will struggle to keep the same value for the arc if the timeframe is zoomed or expanded and this will mean that the arc will give different results depending on the scale. This is a frustrating property of screen-based technical analysis and analysts have to be careful with the construction and indeed interpretation of the arc. However, this is an excellent tool for analysis and if care is taken then some good price objectives are given, but the analyst will have to keep the scale constant once the pattern is drawn. Once more the interpretation is the same as that of the Fibonacci vertical retracement and fanline, where a break of one of the arcs should trigger a move towards the next one. However, as the arc is as much below the current breakout price as above or beside it, it is difficult to predict the direction of the attack on the next arc. This is very different to the vertical and fanline retracements where the direction is more or less assured once the break happens. The curvature of the arc makes it very difficult to suggest the direction of the move. It only suggests that the price will move towards the arc at some stage and does not imply that the next move is bearish or bullish or flat and drifting.

The issue with chart zooming is critical. It is not often easy to see that the radius of the arc has changed unless it is a significant move.

FIBONACCI TIMELINES

In the case of Fibonacci timelines the pattern is constructed as follows. Vertical lines are drawn through Fibonacci days (1, 1, 2, 3, 5 and so on) using a significant day. Usually this means a significant low or high and gives the resulting pattern in Figure 3.10.

This is the Euribor future chart again. Notice that the lines are starting to be late after some considerable time. Up until the eighth period line (2004) the pattern picks out some interesting days. I believe this is caused by the effect of not taking holidays and weekends into account.

The problem with holidays and weekends is somewhat lessened when timelines are added to a weekly and longer period chart. In this example of the Bund Future, the weekly timelines are fairly good at identifying key days in the future. Remember that the pattern can exist from choosing the origin day and long before the price action develops. This is quite different to the previous examples of vertical, fanline and arcs, which need two points of reference before construction. The timeline does away with this necessity. Notice, however, that even though the lines pick out some interesting areas which are localised lows, they fail to identify highs. A brief experiment using the
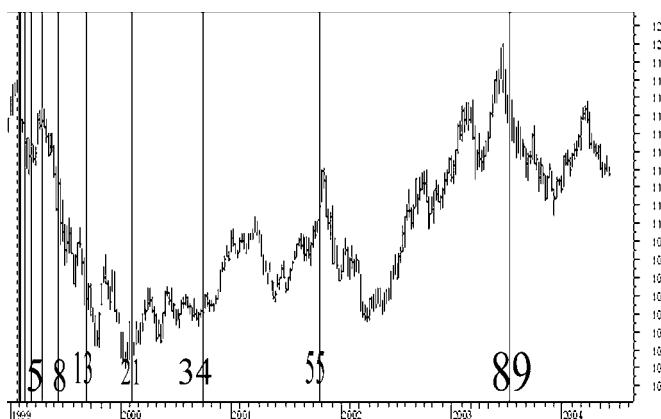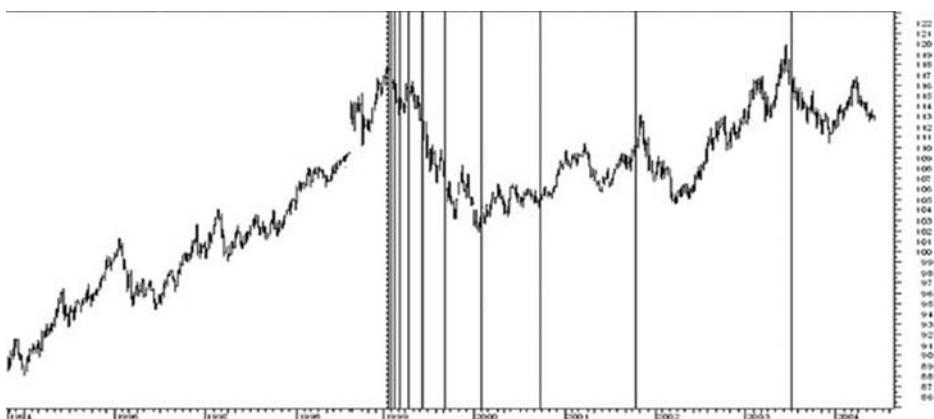
Figure 3.10

same chart, but with the weekly origin at a high will show whether the timelines are dependent on the type of day used as an origin (see Figure 3.10).

Although the high in late October 2001 suggests a way for placing the origin, I have loaded up even more history and used the 1999 high instead. I do not feel confident using the October 2001 high for several reasons. Firstly, it comes at an explosive high which was fairly soon retraced and the pattern continued along the way it had before then. Secondly, the high looks overextended (hence the retracement back) and, finally, the pullback in late 2001 is seen as the see-saw balancing behaviour following the overextension. That is why the early 2002 congestive support levels are temporary. The 1999 high looks to be a more valid point at which to start, as the downmove thereafter is more acceptable to the 'art' of technical analysis (see Figure 3.11). Overextensions are upsetting to the normal behaviour of price moves and the artist analyst can easily spot them.

This pattern works fairly well and identifies some key tops in the early stages and confirms recovery moves in February 2000 and in October 2002, but is starting to lose appropriateness in late 2001 where the high comes after the line and before it in the April 2003 peak. By the time the lines have started to fail with the October–November period I would have stopped using them at all. In Chapter 7 some of the causes of failure in timelines is discussed at some length.

I am not a huge fan of the use of fanlines for several reasons. On a daily chart, unless weekends and holidays are entered in the price database as 'empty' sessions, then the further that price action is from the origin day the less valid the Fibonacci day becomes. Much of this problem is removed when the timeframe is weekly and longer. It has been my experience that there is little to be gained by applying Fibonacci timelines to a chart. The whole point of this pattern is to forecast days

Figure 3.11

when significant moves are going to take place, and while this is an easier pattern to chart than, say, a cycle, I believe that there is more to be gained by taking time to search for a price cycle than simply to apply the Fibonacci days pattern. Most charting packages will have some form of detrending software embedded and often this is a major improvement on the Fibonacci days pattern. I have used Fibonacci timelines on occasion but have found them to be of little real use the further the current bar is from the origin day. Indeed, if used to suggest a change in the prevailing move to a reversal, they are useless. I would hesitate to tell readers to avoid them entirely as I perhaps have not been able to identify a market where application is successful, but when it comes to date prediction I prefer to use cycle analysis or Gann time analysis instead. These both give better results and I am more confident in using these techniques across a wider range of market and asset classes. See Chapters 5, 6 and 7 for more in-depth discussions on the use and effectiveness of fanlines, arcs and timeline applications.

4
Charting and Difficulties : A Historical Perspective

History of charting and charting techniques in the late 20th century. Comments and personal experience of looking at charting. The use of the proportional divider and its slide from use. The introduction of charting packages. Hidden hazards in screen-based systems (data capture/accuracy/loss of long-term history/ issues of price axis shrinking and extension). The art versus science of the technical analysis problem.

The job of the technical analyst has become easier in recent years as computing power and reliable and affordable charting packages have become available. Even the non-professional home user now has access to charting either through standalone packages or via free web-based price feeds such as Yahoo! This has opened the world of technical analysis up to a wider audience and has to be applauded. The pitfalls remain, but simple technical analysis is now within reach of a broader audience. Technical analysts tend to use very aggressive language in analysis of a chart. This sees allusions to warfare techniques – 'will have to fight to overcome congestion', 'attacking the 97.50 level', '99.34 resistance was well defended' and so on. This form of language reflects the attrition underlying the marketplace where the goals of the crowd are identified. I have found it easy, as mentioned elsewhere, to attach personalities to instruments I am studying. Although sector analysis, especially in equity markets, has become favoured in recent years, I believe there is nothing to beat looking at individual instruments making up that sector. It is not uncommon to see the balancing effect of under- and outperforming equities within a sector resulting in the sector performance as a whole being lacklustre. The whole point of technical analysis is to identify assets that have an active price move taking place and to predict

where and sometimes when the asset will reach a certain price level. I believe withdrawing from that objective by looking at sectors is unnecessary. Although sector analysis has some advantages, i.e. comparing one sector with another, the bottom line is that money has to be made or, indeed, risk averted. Even equities within the same sector, such as within the Oil and Gas sector, behave differently. This can be due to merger and acquisition activity, change in operational direction (say a switch from production to exploration) or withdrawal from a core operating market entirely. Sector analysis can be an effective tool when drawing the analyst and investor to a particular investment type, but the real work is in identifying the best component of that sector before the investor will part with money. Technical analysis of the underlying component could be made of government or company fixed income bonds, equities or even a particular commodity within a commodity index such as the CRB (Commodity Research Bureau) Index.

When I started out as a technical analyst, only simple charting packages were available where little if any techniques could be applied on screen. This meant that technical analysts still had to use paper charting methods. Daily bars were drawn showing the high, low and close traditional bars and sometimes on the same paper a Point and Figure chart was drawn. This allowed the analyst to see very quickly two different forms of charting. It is only in recent years that electronic charting packages have been able to construct an accurate Point and Figure chart, which has been very frustrating and has led to the almost total avoidance of Point and Figure in today's analysis. This is a pity as the Point and Figure is a very good analysis weapon and hopefully this will increase in popularity again.

In the paper charting days an analyst would draw trendlines and channels on the chart, identify patterns, measure breakout objectives and clearly obtain nearby targets; in addition price objectives would be obtained some time in advance. The trick was to use the correct paper for the instruments involved. Decimal (metric) paper was used for prices that were naturally in decimal form with ten boxes to the big box; most equities, commodities, interest rates and yield charts fall into this category. However, the UK Gilt market, the US Treasury market and the US Equity markets had to have Imperial paper, which had eight boxes to the big box, as prices were calculated in 32nds of a pound or dollar.

Although the method of pricing in 32nds of a pound or dollar seems strange to us and even old-fashioned, it does have a valid and useful history from ancient times. In ancient Egypt, the volume of grain was measured in hekats and fractions of this were written as $1/2, 1/4, \ldots, 1/32$ and $1/64$. Legend states that when the god Horus, son of Osiris and Isis, fought and killed his father, his eye was torn out and scattered. Later the god Thoth, god of writing and calculations, found the pieces, but they did not add up to a whole eye as $1/2 + 1/4 + 1/8 + 1/16 + 1/32 + 1/64$ comes to $63/64$. The missing piece was 'magically' created by Thoth to complete the eye.

The Gilt market is no longer priced in 32nds and the transfer of historic prices to metric was laborious. Remember that 1/32 is 0.03125 so rounding errors have to creep in for translation to decimal paper, which displays prices to two decimal places, but the larger decimal can remain for electronic charting. The use of Imperial pricing is not as confusing as it sounds as it has an interesting history. Before price electronic dissemination of prices, deals were signalled by hand and could be seen over fairly long distances, not just across a room. The big number (pounds or dollars) was signalled with a tap on the head, half of that (1/2) signalled with a tap to the ear, half of that (1/4) with a tap on the shoulder, half of that (1/8) with the elbow, half of that (1/16) with the wrist and half of that (1/32) on the hand. This gives the following: 1, 1/2, 1/4, 1/8, 1/16 and 1/32 and from combinations of these signals all possible prices could be given. Even the way of writing the price was interesting; e.g. 97 and three 32nds was 97-03, 97 and a half was 97-16. It was indeed a sad day when it no longer became compulsory or necessary to be able to turn a fraction to a decimal in the trader's head.

It is my firm belief that some of the skills that paper charting instilled in the novice technician have been lost with the advent of easy-to-use computerised charting tools. Undoubtedly the possibility of using computer power to chart stochastics and RSIs is a huge advance, but when it comes to the more 'hands-on' traditional methods of charting, the art form of technical analysis has been overshadowed.

What has been lost? Most charting packages allow the analyst to store huge amounts of historic data but here is where the problem lies: not all of it can be displayed under a constant price axis. If you have more than 1000 days of information then the package will oftentimes not be able to display this information. This is compounded by some of the online charting tools where historical data are wiped from the current viewing zone as many online systems have a limit to the number of ticks, hours and days that can be stored. Unless the analyst has been using the chart for a very long time (remember that 1000 days of information is just under five years) then the market knowledge of what had happened before then becomes lost as the long-term history has been wiped. Only rarely in my experience will a technical analyst go back to looking at super-long charts, just because it is inconvenient. I think this is dangerous behaviour in the long term. While there is no way I would advocate a return to the old paper days, contemporary technical analysts have to become aware of the pitfalls of screen-based charting.

As mentioned above, there are problems connected with the amount of data that can be displayed. This was not the case with paper charting as all the data charted could be seen at a glance – as long as there was room to unroll the paper itself! It was much easier then to see what analysis had been done on the chart in the past, especially if the paper chart was inherited, as was often the case. As a technical analyst I like to think of each instrument I study as being a unique personality, with all

the quirks that individuality suggests. This can translate to price behaviour, which may reoccur in some instruments and asset classes in a regular way, while in others these behaviours are never seen. It is a corollary of this that not all technical tools can and should be applied to all instruments, as not all are appropriate or necessary. That is not to say that basic technical analysis is inappropriate: a trendline and a channel is still a trendline and a channel no matter what the instrument is or the timeframe involved. The key to successful analysis is to be able to know when a break of trendline support or the breakout of a pattern is key. Murphy states in *Technical Analysis of the Futures Markets* that a break of trendline is significant if 3% of the price has been taken out. In intraday technical analysis this is a huge price amount and I have found that a significantly smaller percentage is appropriate in that case. As a technical analyst who believes in the inevitability of repeating price behaviour, it is appropriate to use or at least attempt to use techniques that worked in the past, so behaviour during the formation of a pattern (flag, triangle, etc.) should be repeated the next time that pattern develops.

I remember inheriting a neat LIFFE Long Gilt chart in the early 1990s that had successful trendlines identified, theoretical projections marked on the paper, Fibonacci retracements of very long moves and a little Gann analysis on it. This was an invaluable tool for me to use as I had not analysed the Long Gilt for about two years and I was very quickly on-board with the behaviour of the contract since I had last seen the price action. Being a professional technical analyst is the best job in the world and we do stand on the shoulders of giants who have gone before, even if it was a former co-worker. Contemporary technical analysts, and especially when a new 'generation' comes along, have to 'reinvent the wheel', as previous studies are not saved or accessible to the next analyst, because sharing of old charts is not as convenient as was the case in paper days. Many technical analysts start out with a clean sheet, in this case a clean chart of only price action. While it is often refreshing to have someone look over an analysis you are performing or indeed to see whether they can spot some interesting price patterns, this invariably is not the case as many technical analysts work alone and do not have the luxury of a fellow technician. Like it or not, the range of technical analysis online or indeed on paper from research houses is not thorough enough as space constraints limit the possibility of reading about how a particular call has been made. When space allows, a good technical analyst will give free reign to all the skills they have learned: identify trend, pattern suggest. This is why membership of local or national societies of technical analysts is so important as discussion with other (professional or what we like to call 'home') analysts can usually open up ideas. A futures-trading, very short-term technical analyst may be unaware that key long-term patterns, super cycles or indeed Elliott wave critical levels are being reached. It is an ambitious technical analyst who has the time or access to read the many views available in the marketplace. As technicians we tend

to be very proud of our skills, honed daily and over periods of years, and tend to dismiss or perhaps not take seriously enough the work of analysts in a similar field. This is not the case when it comes to learning new skills and applications! Technical analysts are greedy for new techniques and applications and avid users of new momentum studies and charting methods. This is the case whether back-testing some historical price stream to see if it would have been better and more profitable than the system previously used or simply adding the technique to our quiver of existing ones. The education of a good technical analyst is always on-going.

As mentioned above, paper charting gave some analysts a clear advantage. I remember waiting anxiously on a Monday morning for the hard copy charting books, which arrived weekly from the USA, and comparing them to the paper chart I had been developing over the preceding week. These charting books were ideal study aids as some of the assets included showed interesting patterns and were of instruments not looked at very often in the UK, e.g. Pork Bellies. My employer actively encouraged us to practice our skills with these books and to test our knowledge of pattern formation, breakout and momentum. Now that technical analysts can have computerised access to every market (sometimes at a cost) with the press of a button some of these skills are disappearing. I do not advocate a return to the bad old days, but technical analysts have to make themselves aware of behaviours in the past. A key example of this is when a contract reaches new highs and lows; although this contract month may not have reached such values during its lifetime, the historic continuation chart may yield a clearer view as to what happened when this price was attacked in the past. There is some debate about how to deal with rebased data. This is often seen in Bond Futures where the Exchange has changed the theoretical coupon or the basket. Some analysts prefer not to change the historical data to reflect the relationship with the current pricing and others rebase. It is my firm belief that it is preferable not to rebase historical data. The principle of technical analysis and bar charting in particular is that a price was indeed traded at a level and the reaction to that level is then seen. However, if the contract has previous history rebased then that new level might never have been traded at all.

During the 1990s the coupon on the LIFFE Long Gilt contract was changed several times and in the first few years of the 21st century a move was seen from the historic 32nds method of pricing to contemporary decimal, which again offered some difficulties for analysts. See Appendix 1 for a discussion on historical pricing methods. Although the Long Gilt is a fairly small contract it has significant influence on the domestic market. A change in the coupon meant the opportunity to rebase the historical data back to the start of the life of the contract. I preferred not to do this, as I believe that the major highs and lows remain within the universe of Market Knowledge and remain in the background and weigh on current price. This has a significant effect on retracement studies, whether of Gann or Fibonacci, as it

is not simply a case of 'sliding' previous chart data on to the current price zone. The main method for rebasing a bond future involves translation of the price into theoretical yield and then changing the underlying coupon on the bond future and calculating back to the new theoretical price. This renders much of the historical price information inaccurate in my view as the calculation of yield into price will give a range of values, as the process involves too many assumptions as to the treatment of theoretical coupon payments.

Here is an example. The original description of the Bond Future is 8% 10 Year Government Stock; i.e. if this were a real bond it would pay 8% per annum until the tenth year and then give the face value of the stock back at the same time. The price is 91.75 on 7 April for this example and the bond will mature on 15 June in ten years time. The calculated yield for this is 9.28%, assuming only one coupon payment per annum.

Now working backwards from the 9.28% using an iterative process, with the new theoretical coupon of 6% the price is calculated as 78.92, but there is a range of prices that also gives the solution to this formula: 78.91–78.95, and this is a significant range. This range is only narrowed if the coupon is small. In the 1990s it was not uncommon for UK and European stock to have coupons in excess of 12.5%, which results in a greater than 0.10 range (commonly called 10 ticks, where a tick was the smallest price move possible) of prices when worked backwards from the yield. Notice that there is a significant price change after rebasing. This is critical especially if the contract involved had never traded so low before rebasing.

Many analysts would prefer to look at a particular contract month. It is usual for contracts to have four or more 'maturities' in a year, these being March, June, September and December. However, some contracts are illiquid except in what is called the 'front month', i.e. the next one to mature. This is the particular case with the Long Gilt, which only sees daily volume and active trading in the few days before maturity. This time is called 'rollover' and offers many difficult situations for an analyst to overcome. See Appendix 1 for some hints. Like it or not, rollover issues are critical in futures analysis and 'gaps' often appear that are not due to coupon rebasing but to instruments in the underlying basket falling out of the delivery criteria. This cannot be avoided. In situations like that I prefer to use a yield chart, which is less volatile.

Returning to the rebasing question, similar problems exist in the analysis of the Equity market, where stock splits are not uncommon and techniques have to be developed to overcome such cases. While there were undoubtedly occasions with paper charting when frustration ruled, analysts did have the opportunity to show off with probably the only piece of hardware an analyst needed. This was the Proportional Divider, commonly known as a Fibonacci Tool. This was the traditional measuring instrument from engineering but had a special mark on the scale that corresponded to the Golden Mean, 0.618. This meant that the larger expansion of the

divider was the unit and the smaller end was exactly 0.618 of the larger end. These were expensive tools to own, but invaluable, as from Chapter 1 we know that 0.618 of 0.618 is 0.382, the second Fibonacci measure. These tools allowed an analyst to use not only a quick and very accurate method of placing vertical retracement levels on a chart but also pinpointed the level through which the Fibonacci fanline could be drawn, and by extension the Fibonacci arc, with the use of a compass. Needless to say, the need for these instruments has waned and they will no doubt turn up in museums in the future. However, during the transition from paper to screen-based charting I witnessed on far too many occasions an analyst using the Fib tool to measure moves on the screen, which is not only dangerous but completely wrong as at that time it was before the creation of flat screens and the curvature of the screen was 'forgotten'. For use of the Fib tool, see the excellent *Elliott Wave Principle* by Frost and Prechter.

The advent of computerised packages for charting caused a revolution in the industry. Access to instruments was increased. Paper charting meant that an analyst was limited to the number of instruments looked at, as there had to be a paper history at hand. This meant that the stately process of analysis was speeded up and demands on the busy technician increased. Trading desks, which normally had no reason or desire to ask an opinion of a technical analyst, could print off a chart and take it to the local analyst for trading advice. Technical analysts then became more of a general resource than specialists. As the techniques of technical analysis can be applied across all asset classes, the analyst does not need to know what the instrument is, nor indeed the timeframe the chart is set to, in order to give a fairly accurate opinion and outlook. A chart is a chart after all. However, this has seen the more difficult technical tools sliding in use a little, as usually there is only time for a quick glance at a chart, perhaps putting a few trendlines on it here and there before the trader has to return to his or her position and carry out the trade. This can make the skills of the technical analyst look limited and very easy to apply, and over the last ten years or so, with the contraction of analytical time, the more time consuming and arduous tasks in technical analysis, such as those of Fibonacci, Elliott and Gann, have been relegated. Indeed, it is a very good trader who can afford to take the time to wait for an Elliott count or indeed a Gann analysis of a chart. Keeping analysis simple has opened up the techniques of technical analysis to a wider audience, but the more difficult parts of our skill have been given a less important priority. The chance for a technician to shine usually comes from hard copy research, with longer term outlooks on display. This is acceptable to an audience who are looking weeks if not months ahead, but for the majority of technical analysis users who have day-trading limitations, this is too much. I have found that some of the most interesting analysis is being done by what we used to call 'home users' and investment clubs who have the necessary skills and more importantly time to carry

them out. There is very little opportunity for a bank-based technical analyst to show off these days. I was very fortunate while working for the largest employer of technical analysts to be encouraged to develop my longer term skills and to use longer term outlooks. This has been invaluable in my on-going education and does open up new and interesting avenues of research.

Screen-based analysis changed the way a technician viewed the market. Momentum became much more important than it had in the past as it was simple to add a stochastic or RSI on to a chart and indeed change the parameters of these on a whim. Being able to change a 14-day RSI to a 17-day one would have been impossible in paper days and the ability to construct new momentum measurements has undoubtedly improved investing performance. However, it was not always that simple at first! Data spikes were fairly common, especially on currency charts, until quote vendors began to apply filters, but even today spikes cause more than alarm and can throw off measurements and momentum studies, especially intraday.

I remember many conversations with a trader who preferred to look at six-minute charts on the LIFFE Short Sterling contract. For readers unfamiliar with this instrument it is a notoriously dull chart with only occasionally exciting moves, but in the 1990s this position was worse as the contract would move sideways for weeks on end. Trying to pick up some value in a trending but not too choppy market is very difficult. At that time the smallest timeframe I considered worthy of looking at was the half hour chart, but even then these are only interesting if there is sufficient trading volume, and in the case of Short Sterling this was not often the case. A good rule of thumb is that if the timeframe looked at has a sprinkling of closing prices only, then it is time to move up the timescale, so move from tick to minute, minute to half hour and so on. This is especially the case when volumes are diminishing as the contract dies.

In my years of analysis, I have seen many new instruments come on to the market. Some survive but some have spectacularly short if volatile lives. Take, for example, the LIFFE and MATIF launch of a ten-year bond based on the Italian domestic bond market in 1991. There was only a matter of weeks between each launch in the late summer of that year. LIFFE was first with the BTP (Buno del Tresore Polinari) and a few weeks later MATIF in Paris launched their version, which was only slightly different with regard to the number of bonds in the underlying basket.

The early 1990s were enjoyable and exciting times to be analysing Italian markets as volatility was very high, not only in the bond and futures markets but also in equities. It was common to have a daily range in the BTP future of much more than a Big Figure, i.e. a price change of a whole unit, and sometimes approaching Two Big figures. This was compounded by the imprecise treatment of taxation in the underlying instruments (withholding tax), which made analysis very difficult and yield curves very ugly to look at. However, over time traders switched from being fairly well

balanced in their choice of instrument to mainly trading via the LIFFE floor, which saw the volumes traded in MATIF BTP shrink to where it was useless to even try to analyse it with any degree of confidence. Eventually this led to delisting. A similar position had happened in the late 1980s where there was for a time a Medium Gilt Future, based on the five–seven-year basket of UK Gilts but which had a short life, and even the relaunch in the late 1990s did not see much enthusiasm or volume and again this contract was delisted, which is a more caring way of saying 'retired'. That is the reason why we now have the anachronistic name of 'Long Gilt' for the long-term (ten years to maturity) gilt future.

Futures exchanges are always coming up with new and interesting products for trade. After the successful launch of the euro but before the launch of the notes and coins, several exchanges offered euro-based instruments with varying degrees of success. The ten-year ECU contract disappeared to be replaced by euro-denominated debt futures in Germany, Spain, France and Italy. However, it soon became apparent that since the currencies were the same and the only difference in price was due to perceived country risk, volumes in the ten-year area began to shrink for the BTP in Italy and indeed for the one-time powerhouse of the NNN in France. The Bund future ruled supreme, but with a kick in the tail. The Bund future had been a hugely successful instrument for the UK-based LIFFE exchange, but after redenomination and the introduction of the euro, volumes declined as traders moved to the more successful platform exchange of the DTB (Deutsche Terminborse), and in a matter of six or seven weeks, trading in the LIFFE future had all but dried up.

Since trading has settled down in the post-euro markets, surviving exchanges have come up with interesting and diversified contract offerings, but some of these are particularly complex and have seen little enthusiasm from the general trading universe. Although markets have opened up, trading is still the preserve of the few in Europe, where general investing and investment knowledge is still very weak in comparison to the USA where market knowledge is commonplace. I remember a visit to Chicago in the late 1980s and seeing Murphy on television showing the interviewer several charts he had prepared on large sheets of paper and going through his thoughts and outlook for the general public. This was an eye-opener for me as at that time I was only starting out as a technical analyst and was probably more exited about how obscure technical analysis and techniques were in Europe rather than being excited about the skills and opportunities these gave! I am sure in time that the day will come where technical analysts are seen on the more popular European TV networks, rather than being limited to the professional channels.

In 1994 I had the honour of being elected to the Board of the Society of Technical Analysts in the UK. Since then I have had several invitations to give seminars to the membership. It was with extreme trepidation that I stood there for the first time and saw in the front row the Great and the Good of UK technical analysis, all waiting for

my pearls of wisdom, and to let them see what it is like to be an intraday technical analyst. Technical analysis had gone through a dull patch in the 1980s in the UK and after deregulation of the UK markets in the mid-1980s a whole 'generation' of technicians was missing. The excitement and practice of technical analysis was minor to the trading and salaries to be gained elsewhere at that time and this 'gap' has not been filled. The newest generations of technicians are computer literate, numerate and open to new ideas undreamt of by those of my generation and before. Just as a technician thinks they know as much as they need to do in order to perform to the highest standard, some new analytical tool comes along and the education process starts again.

As mentioned before, the focus of technical analysis these days is on intraday charting, whether of stocks or commodities or equities, but the skills necessary to carry out these tasks are as relevant as they were in the past. All that has changed is that some of the hard and fast rules have had to be adapted and tweaked for current conditions. However, in my experience that is the only time they should be, because for daily and longer timeframes, these rules and skills are basically cast in stone. In the 1990s the system of charting known as 'Market Profile™' became very popular for not only futures traders but also for equity and index traders. This turned technical analysis on its head as it looked not at the volume of the trading day but at the distribution of the price action throughout the trading day, with particular influence given to the first two half hours of trading time. This method was and is a hugely popular form of analysis and is an invaluable tool to the intraday trader and analyst. However, use of it pales to insignificance when compared to the introduction of Japanese Candlestick Charting, which came to the West about the same time. This is a hugely popular technique.

Looking round a trading floor these days and seeing a bar chart on screen is common, but looking closely shows that the display is not of the traditional OHLC (Open, High, Low, Close) bar but of the candle. This looks better on screen than a simple bar or line and traders take comfort in seeing the daily development of the size and indeed the colour of the candle as it grows. Most traders are not conversant with the analytical form of charting associated with these charts and the conclusions that can be drawn from the groupings of daily candles, but I have seen enthusiastic technical analysts use these as a glorious way to introduce the inexperienced or indeed hostile to the discipline of technical analysis. I hesitate to use the words 'technical analysis proper' as these imply that candle techniques are not 'proper', but that particular technique has a long and noble history in the Far East, eclipsing the techniques developed in the West by some centuries. It is unfortunate that this form of charting and the associated analysis still has some way to go for acceptance in full in the West, but until then we are stuck with watching barcharts developing.

HAZARDS HIDDEN IN SCREEN CHARTING

Screen-based charting makes the daily routine of technical analysis much easier. The maxim 'work expands to fill the time allotted to it' has had a bearing on the amount of charts that a technical analyst can physically look at during a day, as there is no call now for updating of paper charts. It is not uncommon for a technical analyst to be asked about an exchange rate, a commodity and then some equities all within the space of half an hour. Our true calling as researchers has been placed on the back-burner just a little, as we are responsive technical analysts nowadays: co-workers bring problem charts to us for solution. This is not a bad thing in itself, as a reasonable view can be possible without too much analysis, but it takes time and some measure of effort before a good analytical outcome can be suggested.

Within screen-based charting analysts encounter several issues:

1. Changes of scale, where the price or yield axis shrinks and grows depending on the price series. This is not too serious in short-term analysis but is critical in longer ones. Patterns that look very clear and obvious in a longer term view can be obscured and indeed almost hidden if the price axis is small or the x axis is short. I always find that just loading up a few more months of data will confirm my suspicions, but in cases where co-workers bring a print-off to look at, there is no such luxury. In cases such as this I always start with the absolute basic trendline joining supports and then look for a channel or triangle top. If that fails, we have the first clue to the outlook. Fibonacci tool use is rare these days but those with a divider can get a quick retracement calculation to see where the instrument is in its lifecycle.

2. Physics of a screen. Flat screens within dealing and research floors have removed some of this problem, but there are enough cathode ray tube (CRT) monitors about for this error to still be prevalent. An analyst must not measure on the screen! Looking for trendlines and extending them is not correct using a ruler and the curved screen, and neither is measuring the vertical distance or any other projected measurement. I cannot count the number of times I have seen that going on in a dealing room. It is simply *wrong*.

3. Live data. Streaming prices are a great asset for short-term traders. There are hazards, however, in that a rogue price may occasionally get through. This seems to happen just when the analyst needs good-quality data – at an economic data release, for example. Spikes in data create panic and a flurry of activity to see whether the spike is valid by cross-checking with other pricing sources. This is time consuming just at the moment when some decent activity and hence profit potential exists. Caution should be exercised on occasions such as this.

4.   Historical data. Screen-based analysts have access to a raft of pricing infor-
      mation. Calling up an unfamiliar chart is common and although in recent
      years the quality of historical price information has improved, sometimes a
      spike will get through. This is notoriously difficult to spot unless it is signif-
      icant, as in the case of corn in the following example. However, the spike
      may be much smaller than this and not easy to spot. Spikes cause havoc with
      stochastics and can give wrong readings in the calculation. Editing spikes is
      fairly easy in packages where the storage is only OHLC and is more difficult
      when editing a live feed, but it is worth the effort.

Throughout this book I refer to the two intrinsic disciplines of technical analysis:
the art and the science. This book concentrates on some of the processes in techni-
cal analysis that have a crossover between these two pillars of technical analysis in
that both Fibonacci and Gann analysis rules are fairly mechanical and easy to apply.
It is the interpretation of these patterns and tools and indeed where to site them that
is difficult, and that is the art of technical analysis. While there is nothing that can
be done to teach the art of technical analysis itself, the thrust of this book is to show
when it is inappropriate to apply the mechanical techniques of Gann and Fibonacci
and draw the interested reader to issues and problems that occur when these tools
are randomly and carelessly applied. The art form of technical analysis cannot be
taught in my opinion; it comes from constant practice using all the tools, not just
those covered in this book, to as many market sectors as possible. It is only through
practical application of all the weapons in the analyst arsenal that the art form
becomes apparent. There is no timescale involved here, but obviously an analyst
who looks at two charts per day is going to take longer to gain the eye and art of
technical analysis than one who looks at 50 or 60.
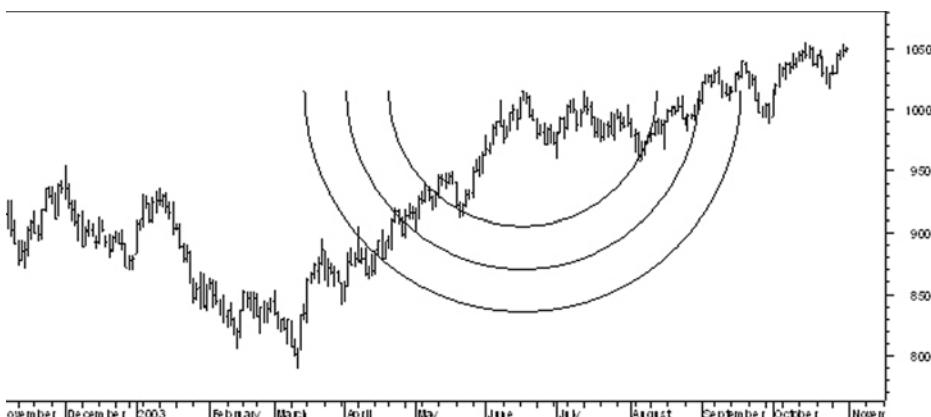
Technical analysis is not an exact science, and never can be, because of the artis-
tic side. The search for a mechanical process that forecasts price targets for the
future still remains the Holy Grail of financial market analysis, but I think it will
never be defined as there are too many inputs, not least of which is the effect of the
behaviour ('madness', as Le Bon put it) of the crowd. Current price is the financial
and pictorial outcome of the battle between buyers and sellers. This is like a tug-of-
war and each participant may have a different reason for thinking the time is right
for the price to move in a certain direction. Predicting crowd behaviour is difficult,
but I believe in the First Principle of Technical Analysis that past events will repeat,
and this can give the analyst some indication of what the crowd will do at certain
times and levels. It is not exact. How price behaved when it approached a level
within a pattern in the past is only indicative of how it will do it in the future. This
is especially true as prices reach 50% retracements of any form. This is the trigger
level psychologically – 'Oh it has lost 50% of the recent gain' is what you can hear

in trading conversations and this has a huge influence on what is to happen next. Even non-technical analysts come out with statements such as this, without understanding the effect that can have on the nervous technical analyst!

How we technical analysts laugh to ourselves when 'fool-proof' analysis and trading packages are announced to the market. There is no sure-fire way of losing it all than to put total trust into a 'black box' trading system. This is very different to those little 'trading tools' and system rules we can write for ourselves; we have the discipline of being able to alter and tweak each of our created systems to suit a particular market condition. These systems may be as simple as a two moving average crossover system, so beloved of examination candidates, which is effective and easy. The trick in trading system testing is that there has to be an ability to change the parameters used within the system itself. Using a Fibonacci pattern (retracement, fanline or arc) has fixed components and here the skill is matching the extremes of the price to the correct usage of the pattern. I believe that using black box techniques, where the user cannot see what is going on with the indicator or signal, takes all the fun out of trading. The best trades are where there has been a balanced argument developed using as many inputs as possible, not just technical analysis, and the price objective is set for the current conditions. There is no point in having a target level that will take a considerable time to be reached or is significantly far off. Time is more than money in this case and the analyst should look for moderately significant target levels, which are within a reasonable distance. Not everyone can be Gann and forecast exact extreme prices on distant dates! We have to build our long-term price objective from a succession of smaller ones and with this succession of targets, move our stop losses higher at the same time. How disappointing to see stop loss levels left behind only to have gains wiped out on corrective moves. Analysts have to be aware that some corrective moves are significant and fast, such as the bullish correction in March in Figure 4.1 of the Standard & Poor's 500 (S&P500) Index in March 2003, which wiped out all those short positions seen from the February congestive high and negated the bear channel top. This was fast and caught many unawares as a trailing stop loss would have been triggered in time for some of this spectacular recovery move to be captured.

Money management skills and techniques are difficult to teach. It is no small matter that every technical analysis or trading book mentions that money management is key to success. However, very few take heed of these warnings and foolish is the trader who fails to use some simple management tools. It is not enough to stick only to using a maximum amount per trade. Markets are driven by fear and greed and within an environment where the analyst or trader has got their position correct it is very difficult not to increase the size of that position, with often dire consequences.

Being too slow to react to the market moving against them can catch out analysts. Panic can ensue and this is the worst time to make a decision. If a trading decision

Figure 4.1

is made and carried out it should have a 'what if' attached to it. 'What if the market turns against me?' should have some warning signal. In previous positions I used a 3:1 ratio; i.e. for an expected three units of profit I have one of risk and if it hits that level then my analysis is wrong and I have to reconsider the direction of the next trading move. There is little to be gained from having a ratio of 2:1 and even less of having 1:1. What is the point of that? A risk/reward ratio of 1:1 (and I have seen it often) suggests the analyst has no idea of what position to take. It is at that point that I would keep out of the market until some other signals are clearer. Risking 1:1 is pointless and indeed the cost of trading makes this even less.

There are other hidden problems with screen-based charting packages, especially on a live feed. The price scale often changes automatically as 'older' data slips out of the range. This can magnify the chart or crush the pattern. Each of these situations is bad for the inexperienced analyst as either can make a chart look as if it is simply creeping higher when in fact it is reaching key resistance from either previous congestive levels or is starting to look overextended. The analyst has to watch out for this happening, especially if no note of key resistance or support levels has been considered. It is to the advantage of the analyst to have as much data on display as possible.

5
Common Errors in Application of Fibonacci Retracements and Extension

Fibonacci retracements within a big move, long-term move and in a correction. What evidence is there that the retracements decrease in efficiency as the 'wave' gets smaller? Should Fibonacci retracements only be used in the primary move in price and not in corrections? Fibonacci extensions: myth or valuable tool?

With the advent of electronic charting packages in the late 1980s–early 1990s the work of the technical analyst became a little easier in some ways. Intraday charting was then possible and with it came market expectation of increased technical analysis output, which improved as more contracts and markets could be analysed in the same time. Charting packages allowed analysts to look at very small timescales, such as hourly and shorter, and from that to take corresponding very short-term positions, which might only last an hour if not less, as in the case of short-term positions in futures and currency markets.

In the case of the rather dull STIR (Short Term Interest Rate) futures markets in the early 1990s major moves were rare, but when they did happen they were sharp and sudden. Analysts looking at short timescales, where it was not uncommon to look at six-minute charts rather than daily, moves on-screen looked more enthusiastic and aggressive than they really were when compared to longer daily charts. Analysts were able at a touch of a button to look at the previously difficult momentum studies such as Welles Wilder's RSI and George Lane's Stochastic, commonly called the (slow) Stochastic, and use these tools to gauge the sentiment behind the

price at any time. In my experience, at that time too much attention was paid to stochastics in charts as this was seen as a 'new toy'. This was especially obvious when looking at the hourly stochastics, which were sub-daily just because the analyst had the computing power to do so and the actual price move was pushed a little to the background. Looking at intraday stochastic charts even today, the sudden swings from overbought to oversold and back again give little additional analytical evidence to making a successful call, as can be the case in current Forex technical analysis where synthetic 'end-of-day' prices are generated. In a previous chapter analysis of the meaning of 'price' the end-of-day value is given critical weight in a technical argument and while there is obviously a clear 'end' price in an hourly chart, this cannot have the same weight as that of the end of the day.

A similar position exists for Fibonacci retracements and extensions. It is very simple within current charting packages to construct Fibonacci retracements of any move on a screen-based charting package and not uncommon to give these equal importance. I believe this is wrong as retracements are of different worth. The 50% retracement is a synthetic retracement and analysts should almost ignore that when it comes to Fibonacci retracements, but remember a 50% retracement has its own value and importance outside the Fibonacci system. While the 23.6% retracement and smaller values can easily be taken out in volatile markets, the 36.2% retracement level is much more important, with 61.8% even more important than that.

In Chapter 4 a discussion of the benefits of paper long-term charting were dealt with at some length. For the past 80–90 years the construction of price charts on paper has been a full-time job. These allowed the analyst/trader to see the extent of price action from the earliest opportunity when the analyst started keeping the chart data. Previous studies on paper charts could be compared at a glance and comparisons made with current price action in order, more importantly, to see the effect and result of moves in the past and to look at similarities with the current move and from this conclude the next move, as price history action is repeated indefinitely according to technical theory. It is this access to long-term history and studies that has been lost in current charting packages. There are very few analysts who keep long-term previous studies on their current view of a chart and even if they did this could not be longer than perhaps 500–1000 bars. That is not very long in terms of technical analysis. I remember one seasoned technical analyst telling me that to predict only one bar forward needed 200 days of history. This is an ideal situation but in reality this does not happen very often as some of the instruments that technical analysts have to look at on a daily basis have a price history much shorter than that. Indeed, it is a rare technical analyst who remains in the same area of analysis for 1000 sessions in their career, so the additional 'market knowledge', i.e. memory, is not there. Each succeeding generation of technical analysts, undoubtedly better aware of the breadth of technical knowledge, especially with the advances in technology and expansion of market types

in the last two decades, has to reinvent the wheel. There is little to short-cut this position. In my career as a professional technical analyst I have studied equities, oil and oil fractions, sovereign fixed income, financial futures, options, electricity and weather. The skills gained in being a technical analyst are transferable across markets but these are the 'science' skills of technical analysis and it takes some time before the 'art' skills are learned within each sector. For example, an equity-trained technical analyst may see a long-term flag pattern on an STIR contract at 99.22 and using their skills see a move towards 100 and beyond, but the creation of an STIR futures contract means that it is impractical for the price to go to 100 and beyond as

$$\text{Current price} = 100 - \text{expected interest rate at maturity date}$$

There is therefore an effective if not absolute cap on price action near 100. This is part of the 'market knowledge' that an analyst within this sector would know and from this modify the outlook and targets. This is a similar position to markets with an absolute maximum price, and despite the attrition between buyers and sellers this price looms in the background and has to temper analytical perspectives.

Returning to the use of Fibonacci retracements within financial markets, it is my hypothesis that there are 'natural' forces within the price at work and these are seen at specific times and levels. General traders are aware of the attraction of 'big figures' within the market, i.e. 101.00, 100.00, 99.00 and to a lesser extent the quarter prices of 0.25, 0.50 and 0.75. Prices are attracted to these and it does not take a technical analyst to see why. Traders remember when such prices are taken out, even subconsciously, and a break and subsequent action becomes part of the 'folklore' of that particular market: these levels and prices are easier to remember than, say, a price of 86.57, even if that particular value was critical in the past. These prices are comparable to the 'Great Attractors' within Chaos theory, and as time passes these levels gain greater importance as price action repeats the consolidation or support and resistance levels at these quarter prices. Thus the quarter value may develop from a coincidental level to a consolidative support or resistance zone as time develops.

In the mid 1990s the importance of the US Treasury Long Bond Future breaking through par (100-00) was a major event and the subsequent reaction was critical until 101-00 came under attack and an extension developed. I well remember announcements being made whenever the bond made it to par, as this was a key event, and our price watcher announced to the office that this key instrument had penetrated a key psychological level. This was not so important when the T-bond continued to firm and break 101-00 and 102-00 (see Appendix 1 for the convention on writing prices in 32nds).

Looking at long-term charts from a Fibonacci perspective shows that many of these moves and corrections do tend to attack zones near the retracements levels

(38.2%, 61.8% and the psychological 50% level) and on a break move further towards the next Fibonacci level, with sometimes only a cursory stop at one of the quarter price levels (0.75, 0.50, 0.25) on the way. There seems to be a natural conspiracy in price action where corrections are involved. It is a force of market action (greed) that desires prices to rise over the long term, so there is a natural reluctance for corrective moves lower to extend for any significant distance, i.e. price value and support levels tend to be well defended and breaks come as a shock to the market. This is similar in bullish markets but the break of resistance is obviously positive and enthusiastically greeted. However, in the case of bearish moves, those who were 'sitting and waiting' for the corrective move to come to an end have to make a difficult choice in either bailing out on the break of support – which is suggestive of getting it wrong – or sitting and waiting a little longer and seeing any profit potential evaporate. This is a difficult situation to be in for an analyst and trader as a break of support may indicate a major alteration of the market knowledge or news environment and be the result of a change in the factors inherent within the price.

While Fibonacci retracements are undoubtedly excellent target zones, an experienced analyst will look to see what evidence there is that the price move will stop before getting to each Fibonacci level. Look at the chart in Figure 5.1. As we know this chart could not be constructed until after the high seen in June 2003 so the retracement resistance (23.6%) from February to March 2003 is simply a coincidence. What is more important is that this chart is constructed from a fairly serious upmove from

Figure 5.1

below 108.54 to above 115.24 and the subsequent downmove. With such a short history there is little to suggest that this downmove from 115 is a major correction and more data points are needed. However, looking at this chart in some detail, it can be seen that the effectiveness of each retracement is different and from this I would suggest that the subsequent moves are reflective of the importance of each retracement level. Not all retracement levels are created equal! Very little attention is generally given to those Fibonacci retracements under 38.2% but in the Futures market I believe a little more attention has to be given to the 23.6% Fibonacci level, which in this particular case acted as strong support for several days just above 113.64 before the gap lowered and slid towards the 38.2% Fibonacci level. In this case, this move was encouraged by the break of the very strong congestion from late February to early March at 103.60 and the only minor bar support at the 38.2% retracement saw a corrective bounce. At this point a recovery could have been suggested but as the 23.6% Fibonacci level was not attacked, traditional Fibonacci analysis comes back into play as we know that the break in a Fibonacci support encourages a move towards the next available one; this is clearly what happed with the break towards 50% at 111.87. This offered little in the way of support (not a quarter price value so traders would have given this little time) and the move continued to develop with the 61.8% Fibonacci seen as the next port of call. However, as we see in August, this zone was very difficult to break from and a period of consolidation about the 61.8% area developed, before gaining some enthusiasm for an attempt to move lower. By the time the chart has moved towards December 2003 the effect of the Fibonacci retracements pattern has been diminished, as the full 100% is still elusive. This is seen as a function of the increased volatility within price action and there is some traditional evidence developing that strong support from the previous November–December of 2002 is offering strong support. What does this tell the analyst?

Retracements, while important, need confirming evidence from other techniques and not all retracements are created equal. I believe there is too much importance given to the 50% retracement of a move, as this is only important if it corresponds with a critical quarter price within the market. We know that the 50% level is a 'synthetic' Fibonacci level in any case and is only interesting in itself. Key is the 38.2% level as that confirms the start of a local correction and an attempt to move towards the 61.8% level; in some markets the lesser important 23.6% levels are encouraging for developing a sound technical outlook. However, the use of sub-38.2% retracement levels is dependent on the market conditions and to some extent the size of the price of the asset. For example, a rally from 0.9915 to 0.9975 with retracements at 0.9966, 0.9960, 0.9951, 0.9944 and 0.9936 and where the price moves to 99.66 the 14.6% retracement and then to 23.6% at 0.9960 is not as major as the 102.75/102.12 rally, with calculated retracements at 102.65, 102.60, 102.51, 102.44 and 102.36 performing the same corrective move.

Figure 5.2

Let us look at the efficiency of a move in a little more detail. We know that there is an underlying effect from a historical high and low that cannot be denied and, more importantly, the relative positioning of the current price to the high and low. This is critical to Gann analysis (see Chapter 9) but also has a bearing on Fibonacci analysis as well.

The triple retracement chart of Figure 5.2 shows a more detailed Fibonacci analysis of the move. Such analysis is not common but I include this to show the relevance and importance of Fibonacci retracement analysis within big, intermediate and small moves. Again the retracements could not be constructed until after the high above 115.24.

1. The long-term move from the low at 103.80 brings out the corrective bounce from the 23.6% retracement level, which is very close to 112.50, which is commonly known to be an 'important' price, being one of the quarter prices discussed above. Again here the consolidation and 'vibration' about the 23.6% retracement level has seen a lot of action and sentiment has switched to vibration about the 50% level, which is above 109.50, again a common quarter price level. Breaking this on a sustained basis will be key to the long-term outlook. There is little evidence to encourage a move higher at this stage as the price action looks to be on a sustained downturn, but sharp moves lower are not seen.

2. The intermediate move from the 107.80 level shows retracement values capturing periods of 'consolidation' within the corrective move, but there is much

more volatility in prices using this particular retracement system and a corollary of this is that predictions are going to be a little more difficult. Fans of Elliott wave theory would see this as conclusive proof that the a–b–c correction is developing well, but for more general technical analysts this retracement is not as useful as the long-term one.

3. The short move from the 110.20 level captures interesting levels all the way back to the 100% level at 110.20, which has been exceeded. The Fibonacci retracement tool has been short-lived in this case and I believe fairly useless, as better analysis (and faster) could have been taken from more traditional pattern recognition analysis. There is almost a 'V' top, which in itself is an interesting if rare occurrence, but adherents of traditional pattern analysis will draw conclusions (correctly in this case) that the price move is overextended and the sharp correction was only to be expected.

By looking at these moves in some detail, it is apparent that excessive use of Fibonacci retracement levels can be meaningless. In this particular case the intermediate move is of greater importance to the development of the correction and better target levels are given. However, this has to be seen in comparison to the long-term move from the low. This was in fact a critical low in this instrument and has to be factored in to any outlook. The chart in Figure 5.2 is of the five-year Bobl future contract on the Eurex Exchange and followed a change in the theoretical coupon of this future contract – hence the gap seen before September. This is an example of a rollover occasion where rebasing of the historical data did not take place, so this represents the 'true' lifetime low of this contract as it stands with the new coupon value. This is critical and will add to the 'feel' of the contract as much more information can be gained from a lifetime low than simply from a rollover of a contract once expiry has happened. Readers unfamiliar with futures rollover issues can read a little about this in Appendix 1, where some of the issues regarding price, historical highs and lows and rebasing of data are discussed. Fibonacci analysts would feel more comfortable with the long-term view, but for short-term traders other analyses are more profitable. The danger in an over-reliance on throwing Fibonacci retracement levels on to a chart, without consideration of where the origin of the move comes within the bigger picture, cannot be overemphasized.

CORRECTIONS

Turning to the use of Fibonacci retracements within corrective moves, just how efficient are these? Analysts have to remember that corrections could turn out to be more than that and hence the term 'correction' may only have a short-term validity. Often the correction 'goes too far' and becomes the start of a major move. It is a

Figure 5.3

difficult position to be in when trying to judge just when that happens. However, assuming that the correction is still 'valid' given this caveat, retracement levels can be valid, even if the timeframe is very short, as shown in Figure 5.3.

Here the corrective move is seen from the high at 113.60 to 110.20. This is a sharp downturn as you can see and has not taken much time to develop in comparison with the struggle to rally from the 110.20 area in January 2003. This is usual within such corrective moves in the futures market. Detailed analysis of this position shows that there was very little to gain in the 23.6% retracement level and indeed in the 38.2% retracement level initially the contract headed higher to attack the 50% retracement level. Remembering that this is a 'synthetic' value, it seems to have gained importance from the previous price action in this zone when the contract was sliding lower two weeks prior to the attempt to bounce. Given that this level 'held' then the subsequent slide back is not surprising, but there was no attempt to head back to the low. This should have encouraged bullish analysts and the recovery through the 23.6% level the second time in April was slow and secure. This time consolidative trading zones have developed at key retracement levels at 38.2% and about 50% after an initial piercing of that level. Breaking the 50% level which had held firm in March was enough to show that it no longer was 'strong' resistance and that the next attempt to move higher should be successful. Confirmation was not long in coming as the break towards and through the 61.8% retracement level triggered the start of strong upticks and an advance towards a new high once the 100% retracement level had been successfully negotiated and taken out.

The usefulness of Fibonacci retracement levels within a corrective move seems to be effective, if sometimes short-lived. Trading within a correction is a very interesting time, as there is still a strong risk that the correction is going to develop into a price rout. It can clearly be seen from this chart that there was a strong attrition developing between buyers and sellers as the contract slipped and threatened to attack the low of the corrective move at 110.20, but as buyers won out in the end then the fear of extending the initial downmove was eliminated. Le Bon in his seminal *On the Madness of Crowds* and Plummer in his *Forecasting Financial Markets* reiterate the fact that crowds will continue to exist with a unified goal around a leader until the local environment or issue is resolved or removed. This is clearly what has happened here. In this case the goal was to force price action lower and the crowd action remained intact above 110.20 until there was enough evidence to confirm that the premise and purpose of the downturn in prices had been resolved.

This chart also shows a Fibonacci extension level. These are interesting levels in themselves and are looked at below. Notice that this one is in 'blue sky' territory and therefore placing it as a prospective price objective is risky in the extreme. The analyst has to be aware that the instrument may not be able to reach that extreme at all, but it is handy to have 'for emergencies'.

It is my premise that Fibonacci retracements have to be carefully applied. I have outlined above the importance of retracement moves and have shown that price objectives and targets diminish if the pattern is drawn within a larger move in the same direction. This could give rise to serious overtrading and indeed financial loss. Drawing a Fibonacci retracement pattern from a historic or lifetime high or low is more valuable, but again we return to the problem of not having such information available. Individual contract months for futures prices, where each contract month can be imagined as having its own personality and idiosyncrasies, allows a more accurate analysis to develop, but as these tend to have very short lives. Indeed, in the initial weeks there is very little price history to call upon and application of anything other than patterns is often a waste of time, to say nothing of the issues surrounding coupon changes or indeed changes to deliverable standards (the 'basket'). See Appendix 1 for a further discussion. Trading in asset classes with a longer history will give rise to issues regarding the 'high' and 'low' and is dependent on the timeframe of the prospective particular trade. Many new analysts are unaware of the long-term patterns and price history in much of the current market and tend to focus on what is 'their' lifetime experience of high and low. That is fair enough in the short term but in order for the art and science of technical analysis to be successful in the long term, knowledge of such values (whether of yield or price of an asset) has to be critically examined.

However, their use in corrective moves is valuable, as demonstrated above, and can be seen in the next example of the correction in the FTSE-100 future contract. Here the weekly corrective move has only recently developed from the 2003 low but

it is looking positive. Again the analyst has to be aware that the pattern can only be drawn after the low in 2003, so the interesting price action seen previously, especially at the 50% support level, is coincidental. Current action has seen the 23.6% resistance retracement level taken out and as this remained strong in the little corrective move in the summer of 2003, this retracement will act as support as the index attempts to extend the rally. Additional bullish evidence comes from the successful break of the congestion from late 2002, which also supports this recovery move. The index will have to break through the 38.2% retracement resistance level before confirming the strength of this move, but as there has been little corrective action since the break of 23.6%, this looks favourable and an initial objective for the index would be at the 38.2% resistance.

EXTENSIONS

Fibonacci extensions are often overlooked and to many unfamiliar with the concept they simply appear as a dotted line on many charting packages. Using these is not without inherent danger but some interesting objectives can be taken from these, again with varying success. We saw in Chapter 1 the construction of the ratio above 1.00 and how it is constructed from the relationships between succeeding filial generations of the rabbit sequence. To recap, 1.618%, 2.618% and 4.236% are critical here. Of course, as has been seen in earlier chapters and also in my personal experience, the last one is of little practical value. Technical analysts also take short-cuts and have additional but of minor importance 1.50%, 1.382%, 2.00% and 2.382% extension values. In my experience, I have only used the larger extension values on two occasions. The first was in the early hours of the morning of UK election day 1992 when there was a surprise Conservative Party victory and the Long Gilt contract at LIFFE opened extremely early to cater for the demand for gilt products from the Far East and the second was in panic at the STIR values obtained the afternoon that sterling moved out of the Exchange Rate Mechanism in 1992. Both these attempts met with very limited success.

Turning to our chart of the corrective move, as discussed above, the initial 1.618% extension level is shown as a dotted line (see Figure 5.3). The recovery from the correction is seen well advanced and fairly healthy after the break of the 113.60 level, but here is a prime example of greed taking over from wisdom, as the contract is moving into localised 'blue sky' territory, which should be a warning for the analytical community. In Day One of a technical analysis study, students learn that a trend is in motion and will continue unless there is something to stop it. This could be major resistance or some fundamental news coming out of the blue, e.g. the attempted assassination of a major world leader, coup, election victory or some
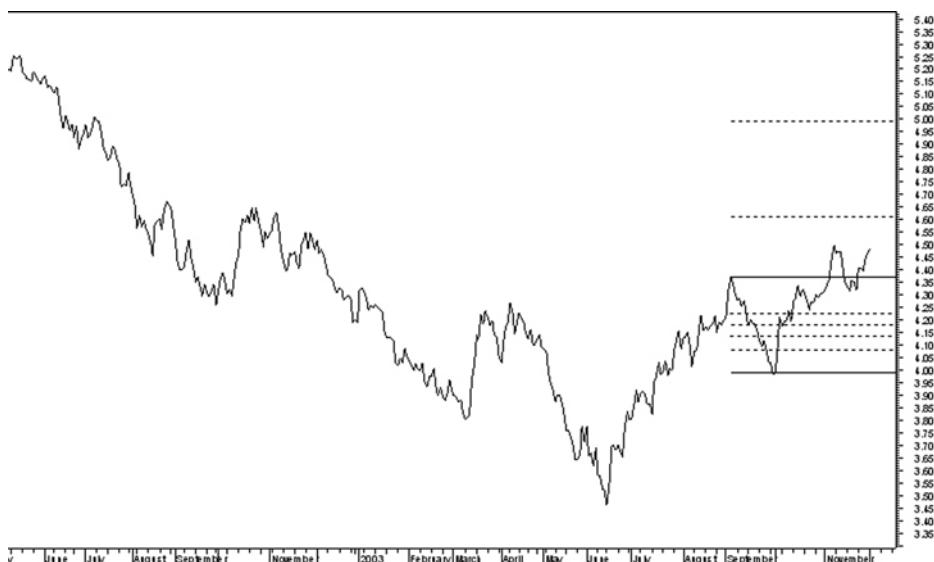
other political news. In the above chart, the contract looks to be running out of steam and although there are not enough valid trading sessions to confirm this, the bearish outside day that developed after making a new high that session should be evidence enough that there is little to encourage a push for the Fibonacci extension level and the move is at an end. A good technical analyst would use momentum studies very carefully in cases where price action is reaching uncharted territory, especially where this comes as part of a bull channel rally. The mathematics of a stochastic, for example, will keep the value of the stochastic in extremely highly overbought territory, as the current price is still high in comparison to the previous price action. At this stage the stochastic is fairly useless as the bull channel can be seen as simply a trending market. This is equally true for bear channel moves as the stochastic is oversold.

In the particular case of the continuing bull channel where the contract has indeed traded at such a price area in the past, but with different delivery particulars, it could be argued that with current delivery specifications this is indeed uncharted. In this case of uncharted territory, an attack on extension levels looks overenthusiastic, but that is not to say that such arguments are invalid all of the time.

I prefer to use extension objectives that have clear confirmation of previous price actions. This is best seen in a corrective move, similar to that discussed above (see Figure 5.4). Here the contract is drifting after the 100% retracement at 109.86,

Figure 5.4

Figure 5.5

which should keep the focus lower a lot longer. The initial objective is the extension level as the market at the 108.41 area, which was an interesting congestive zone in November–December 2002. Analysts should be aware of the wide bear channel that is also developing on this chart. This should keep the bias to the downside in the short term, but breaking through the extension and congestion as seen at the 108.41 area looks difficult to predict at this stage. Once that key level breaks then the next extension support is seen to be in danger. Analysts would be unwise to call for that level at this stage in the chart development, but in the longer term this would become a key bearish objective if 108.41 fails to stem the slide.

Looking at a Fibonacci retracement pattern on the ten-year bund yield in Figure 5.5, the pattern is set on the corrective move from the 4.37% high in September to the 3.99% low in October. Already the yield has recovered well and despite the setback with the slide back under the 100% level in November now looks set to sail for key congestive resistance levels. The first of these is the 1161.8% extension level at 4.61%, which corresponds to the congestion seen in late November 2002. This will be a difficult region to cross. However, the yield looks to have formed a fairly strong base already, which will give additional support to the recovery move. Notice that the yield is moving through levels that have been previously traded many times. This will remove fears that a break to extension levels is difficult, as is the case in 'blue sky' untraded levels. However, at this stage it is still far too early to call for a move to the next extension level at 4.99%.
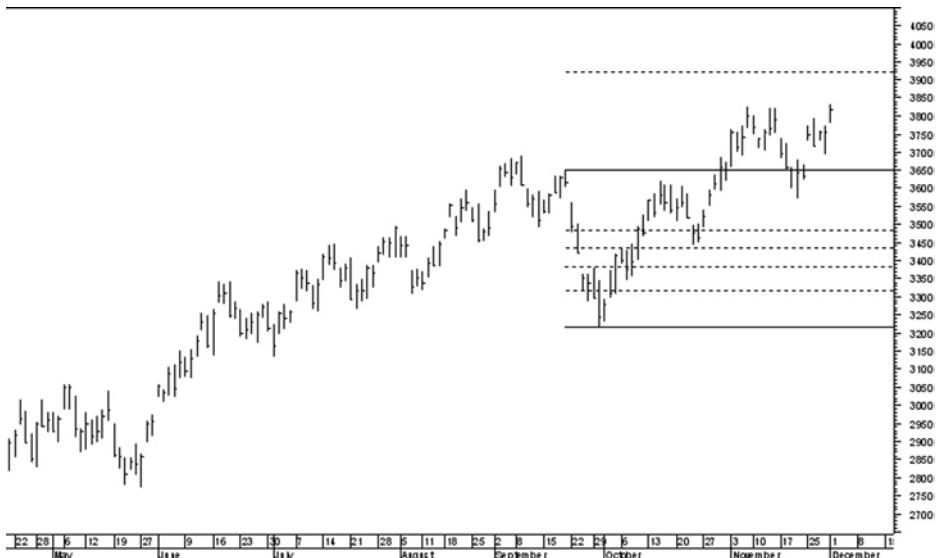
Figure 5.6

In the case of the Dax future in Figure 5.6, current levels have been traded in the distant past, but these were in the pre-euro days so current price action in the future contract is really making new contract highs. The retracement support at the 100% level now underpins this move as the attempt to break back under it has failed and there is a threatened island developing on the daily chart. The future will need to break through the recent high and continue towards the extension level to remove the threat of gaps or indeed an island top developing on the daily chart. Both of these situations are bad news for the contract at this stage in the long-term recovery move. Gaps are infrequent in technical analysis but are very dangerous when encountered.

Just for amusement I have included a fairly nonsense chart analysis in Figure 5.7. This is the retracement of the Schatz in recent price moves. No analyst in their correct mind would apply Fibonacci analysis to such a short-lived move, as there are more valid methods to use at this stage. However, for completeness it shows that the application is not without some value. Notice that the initial extension level is not too ambitious from here, but again there will have to be a convincing break of the 100% support level before calling for a move to that zone. The dominant pattern is still the bear channel on the daily chart and that sees channel support roughly in the region of the extension level. This gives additional relevance to that zone as a target, and draws attention to the fact that any downmove could be limited to the conjunction of these two effects of Channel support and Fibonacci extension.

Figure 5.7

Analysts have to take account of when conjunctions at various levels take place, as this gives the particular level increased importance.

To recap, the key retracement and extension levels in the Bund chart above are shown in Table 5.1. The 161.8% and 261.8% extension levels are displayed on the chart as a matter of default in this particular package. Analysts feel more comfortable with levels that have been actively traded in the past and although they look extreme, within the current pattern they are not out of sight. Looking only at Fibonacci analysis of this chart, and disregarding patterns and congestion, the extension levels look attractive. Analysts may wish to see confirmation with a break of the 109.00 'psychological' level before focusing efforts lower, but given

Table 5.1

38.20%	114.35
50.00%	113.59
61.80%	112.83
100.00%	110.37
138.20%	107.91
150.00%	107.15
161.80%	106.39
200.00%	103.93
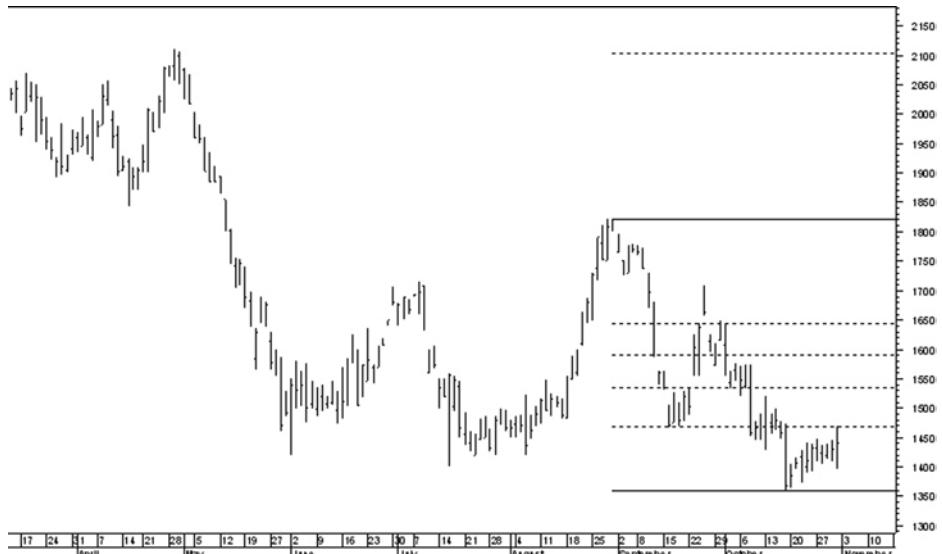
Figure 5.8

the overwhelming evidence that the downmove is not over, and indeed from the larger chart where the retracements from the historical low were taken, the extension level comes pretty close to the 61.8% Fibonacci retracement of the major upmove from March until June 2003.

In this example of two Fibonacci applications on the one chart, the big move in Corn (continuous basis) from the May low to August high in 2002 is shown and a little retracement from the April to July 2003 downmove (see Figure 5.8). The recent bounce from the October low has developed well and the recovery has been based on the formation of a succession of bull flags, as can be seen. Not only that, but the spike high for August has been successfully broken as the contract attacks the 100% retracement at 256. It is interesting to note that the 61.8% retracement of the little Fibonacci retracement pattern corresponds with the 50% from the much larger one. Notice that in the big Fibonacci pattern this level saw extended periods of consolidation and congestion from late 2002 into the spring of 2003. This will act as a very strong support in the short term. Current action is at the 38.2% retracement of the larger move but a break to the 100% retracement of the smaller move is favoured. Notice that these two retracement patterns are opposite: one positive, one negative in direction. This can leave a heavy weight on the analysis, but as the break of the big Fibonacci 61.8% retracement failed to develop, there is an argument for stating that the effect of this big pattern is waning. The dominant pattern is the current one, and the levels from the larger are supplementary to the current ones.

In this example, the yield in the Swiss 10Y bond recovery looks to be running out of steam. The yield is struggling against the congestion at the 50% retracement level and has not been convincing in the past in showing that a break is going to succeed. Trendline support which could be part of a wedge formation if there is further failure on the upside is keeping the yield well supported, but there is little room for manoeuvre unless there is a successful break higher. The yield will have to move against the congestion above 50% and prove that the rally is not over. It is interesting to note that in September 2002 a small congestion developed about 2.80/2.84% and again in the mid-October period. There is growing evidence that this is a key problem area for the yield. If there is no successful break higher then the yield will move lower again quickly. This is one of the problems with Fibonacci retracement levels: failure to move through retracement levels is usually caused by other technical reasons, congestion in the main. This chart also demonstrates that a successful move through various retracement levels is best seen when there is a succession of bull flags. There are none apparent on this chart and that is one of the issues around a successful break in the 50% level. This is in sharp contrast to the cocoa continuous chart seen in the next example.

Despite the attempt to recover from the low in October, cocoa (Figure 5.9) (continuous basis) has not been able to move higher. There are many congestive reasons for this, in particular the congestive base formed in September and later in October and the congestion from June and July. There is a bullish outside day in evidence in

Figure 5.9

Figure 5.10

the last bar, but if this is not followed by a successful break of the 23.6% retracement level, which as we know is fairly minor in importance, there is a strong risk that the recovery pattern will fail almost at the outset. Despite breaking channel resistance in mid-October, there has not been significant upside momentum, which suggests that the dominant bear move, which started at the August high, still has influence. The succession of bear flags from the high add to this conviction, but the most recent bear flag has failed as it is too long and too high. Remember that flags really only work if the flag does not retrace one third of the 'flagpole', which is not the case here. This contract is in danger.

Taking the next example of the Bund future in Figure 5.10, the contract is seen in a notorious broadly sideways move since the initial bounce from the 61.8% support level in December 2003. This is a weekly chart. It is not uncommon to see patterns such as this during a working lifetime. The contract has not been able to renew the dominant bearish move from the high and although the current action is negative, support is looking fairly strong at the 50% and 61.8% retracement levels. These levels have additional supportive evidence from congestion in the past and will be difficult to cross. Looking at the price behaviour surrounding the bounce from 61.8%, the contract has been in a bear channel, but saw the top of that taken out very successfully in August 2002. This has put the reigns on the downtrend and knocked some of the momentum out. The bounce site is not only retracement but in the middle of some very strong congestion from the summer months and later in

2002. Again the pattern suffered from not seeing a succession of bear flags on the way down and despite bear channels being almost as important bearish news as flags, the lack of continuous, growing negative action is missing in the channel. Recovery since then has seen some bull flags developing, but these have been short-lived and successfully measured out although the flag formed at the 23.6% level did not develop at all. This has left an isolated top congestion on the daily chart, similar to that seen in early 2003, which was followed by a strong move ultimately to the key congestive high. There is a strong risk that this pattern is being repeated once more and unless the 50% retracement support level is taken out the contract is in a difficult position for analysis. There is a word of caution here for bears of this chart: this is not the right shoulder of a huge weekly Head and Shoulders formation. Notice that if it were the case then the neckline joining the May 2003 and November 2003 lows is seen to be negatively sloping and the current 'shoulder' is too large in both amplitude and period with respect to the initial shoulder back in late December 2002 to January 2003. I believe that to see a Head and Shoulders properly plating out, the shoulders should not be symmetrical, but indeed there should be some deformity in the second shoulder in both vertical height from the neckline extension and in the width. This would be the pictorial result of changing sentiment in the market as any bullish temperament is slowly accepting the dominant bearish move.

SUMMARY

Given the arguments and analyses in this chapter, it is clear that there is indeed a time and a place for Fibonacci analysis within financial markets, but experience is needed before confident application can be made. Common errors arise from inappropriate application, as it is not enough to take a low and high and slap a retracement pattern on the chart. Indeed, the choice of origin and extreme price levels have to be carefully thought out. Not all price moves are appropriate to use in these vertical retracement exercises and although some long-term moves, which take months to develop, are key in themselves, price action of a closer origin and extreme value may be more appropriate to use. Fibonacci retracement values when relative to a historic high and low (preferably a lifetime high or low) are key, but many analysts have no idea what the lifetime high or low is in some assets, especially in the equity and Forex market, and have to settle for much closer relationships. In truth, even knowing that the low of BP plc (a UK oil company) in 1952, for example, has a bearing on price action currently is of little real use. What is more important is knowing where the current price is relative to the last primary move. Most trading decisions are made on the back of gut feeling and then on key level penetration.

Fibonacci analysis is one fairly simple method of finding out what key levels are, not only now but some distance in the future.

Basic Fibonacci analysis should be kept to the short-term price action if there is insufficient historical data, and indeed where there is no indication of the historic high or low. Therefore the relationship between the current price and its position within the development of the price series cannot be judged. However, it is sufficient to use as much data as possible to load on to the computer screen. There is a high risk that an inexperienced analyst or trader loads the default amount of data on to the chart space, missing out what could be a critical move in the past. It is a well-documented fact that markets move in waves and cycles, and although a display may show a downtrend of six months, this could be just a limited correction within a much larger bullish move which could restart at any time. For analysts looking at very short-term positions, the relative position of the current price in the Grand Scheme is of little importance as it is much more important to have the perspective of where the price is within the most recent moves. Fibonacci retracements when applied to corrective moves are ideal for this.

Extension levels should be avoided unless there is previous price action in this region as accurate predictions and target levels fall short of reality and reflect badly on the otherwise excellent technician! Although these price objectives are handy, they really are Third Division levels when conducting analysis. I would much rather use patterns and measure their objectives than use a Fibonacci extension level as a preferred target. Other patterns give just as good results, and the analyst can feel more confident in these suggested levels if they come from either previous price history (support and resistance levels, especially congestive trading zones) or are part of a channel or trendline. Indeed, I would prefer to use a Fibonacci fanline or a Gann fanline first rather than use an extension level as a target, but that is purely personal!

6
Application and Common Errors in Fibonacci Fanlines

Construction of a fanline within a primary move.What does the addition of time within this charting tool give to the analyst? What effect does the extension of the time axis (x axis) have in the accuracy of forecasting?

Let us take some time to look at the construction and errors within the Fibonacci fanline pattern. We saw in an earlier chapter (Chapter 3) how to construct this move from the significant low and origin. In this chapter the examples use lows but application and results would be equally true from a significant high. However, fanlines from highs do give some problems which will be outlined later in this chapter.

This first example (Figure 6.1) shows a daily annualised yield chart of the ten-year Japanese Government Bond (JGB) with a Fibonacci fanline constructed from the June low to the extreme high in early September. Here the fan pattern is very steep and in my opinion fanlines as steep as this are sometimes of little value. However, it can be noted that steep fanlines do not suffer from the problems associated with the lack of weekend and holiday data, but nevertheless a steep fanline will only exist for a short time. Here the retracement supports at the fanlines work very well with a little pause at the 38.2% fanline support in mid September and a bounce from the 50% fanline later that week. The failure to break back towards the 38.2% fanline is seen as the signal for consolidation, which happens until the early November period as the yield moves within a little channel. Notice that the attempt to take out the 1.55% area and move towards the 50% fanline fails, which triggers a sharp move lower again towards the key 61.8% fanline, where a small pause is followed by consolidation after the break. Further analysis is needed from here as the yield has moved significantly from the pattern and more traditional methods should be used.

Figure 6.1

This example (Figure 6.2) takes a longer term fanline from the high in September 2002 for corn (continuous basis future contract) and the congestive base in July 2003. This shows up some interesting issues that the novice analyst should be aware of, in this case that the spike high in May 2003 is not significant in Fibonacci fanline terms despite hitting the 61.8% fanline, as this pattern could not be created until the low in July 2003 and it is simply coincidence. Looking at the development of the yield after the low, the contract has maintained a broad consolidation about the 38.2% fanline resistance level, especially after the failed attempt to attack 61.8% in early September. However, notice the sharp move that resulted after the break of 38.2% in late October and the brief flag pattern above the 50% fanline later that month. This is encouraging as it is additional bullish evidence for the recovery in yield; at that point a break towards the 61.8% Fibonacci fanline level should have been considered. Again after breaking from the 61.8% fanline, other technical tools should be used. This chart also shows a gap, but this is not a price or yield gap but a rollover gap, (see Appendix 1 for an explanation).

Figure 6.3 is an excellent example of the fanline in use. The US Treasury Bond future is showing exhaustion after the rally and peaks at 124.375. The fanline is constructed with this level as the extreme and the origin of the pattern is set at the March 2002 low at 97.50. Once this pattern has been implemented then the forecast can be made and this fanline works fairly well. Notice the consolidation above the 38.2% fanline support which, once successfully broken, triggers a sharp move lower

Figure 6.2

Figure 6.3

Figure 6.4

and again sees consolidation, this time about the 50% fanline support level. From there 61.8% retracement attracts. The subsequent price action is choppy, and given that a very long period has elapsed since the origin low, and even from the high, the fanline pattern is looking useless at this stage.

Another example of the pattern in use from a distant origin to a local extreme is the yield on the 10Y UK Gilt (see Figure 6.4). The construction is as before but the low in June is seen as the extreme level for completion of the construction. The subsequent July–August yield action is short and sweet as the recovery in yield develops. This pattern is not as successful as that above as penetration of the various fanlines is brief, and in the early August period the failure at 61.8% and slide under 50% shows that the yield is entering a difficult period. Fears of choppy consolidation developing are only removed with the break of the 61.8% fanline later in the month, which is followed by base forming about that level. This should encourage yield bulls to see a break higher, which comes in September, but even subsequent action does not negate this recovery sentiment. The failure to attack the 61.8% fanline then sees bullish confirmation of the initial recovery in yield and the sharp move higher has developed and extended well. At the end of the charting period, the fanline is so far away from actual yield levels that it is of very little use.

Although in Figure 6.3 the origin is over a year previous to the high, this pattern works well since the subsequent price action after the high is fairly close in time to the date of the high. Fanlines tend to rely heavily on their proximity to the extreme
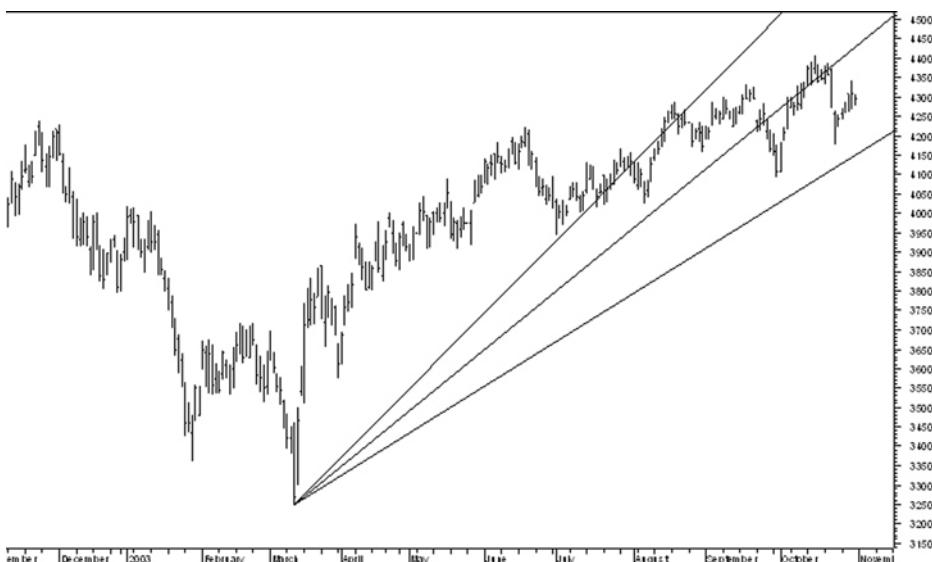
Figure 6.5

rather than to the origin and this will be compared with the following example where both origin and extremes are significantly away from current price action. However, first we will take a look at 'running' fanlines.

A 'running fanline' is the name I give to the following pattern. Here in the case of the FTSE100 Index future contract there has been a considerable period of attack to the upside followed by modest slippage (see Figure 6.5). This has seen the contract forming a channel base since late September 2003. The fanline here is initially taken to the June high from the March spike low. When constructed the pattern is significantly away from price action and it is only on the attempt at the beginning of July to break the 38.2% fanline support that the fanline is appropriate. There follows a period in July where the price moves along either side of the pattern until August, and a failed attempt at the 50% fanline support level is succeeded by a return to the 38.2% fanline. However, notice that the new high in August causes some problems. The angle of this fanline is relatively steep and it is at this new high that the fanline pattern fails to be valid. The fanline should then be constructed with the 'new' August high as the extreme value, as shown in Figure 6.6. Similarly, the pattern has to be redrawn for the October high and for the November high as well (see Figure 6.7). This reconstruction of the fanline gives this operation its name, 'running fanline', as the pattern is always catching up with new extreme values.

In this example the three month LIFFE Euribor futures (front month continuation) (Figure 6.8) has also suffered from 'running fanline' problems from the January,
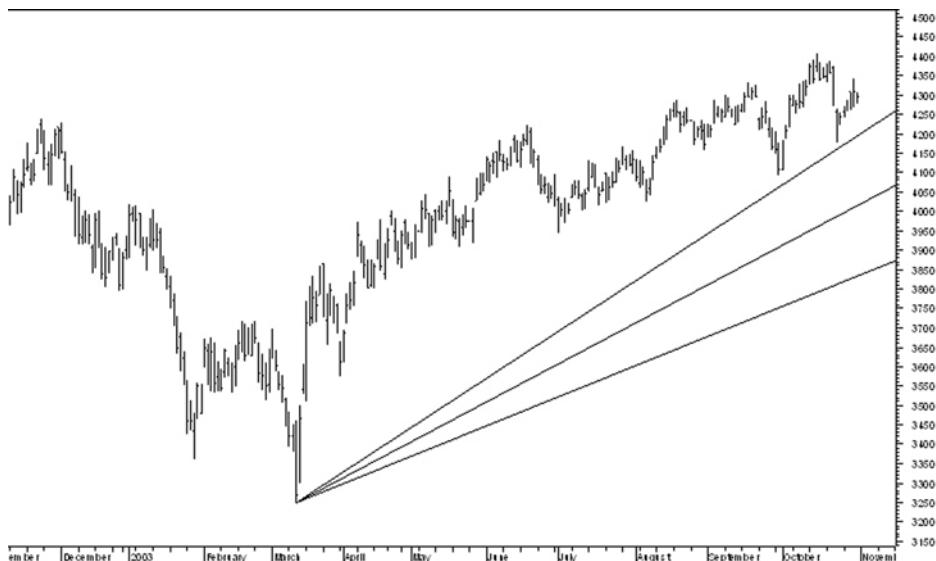
Figure 6.6
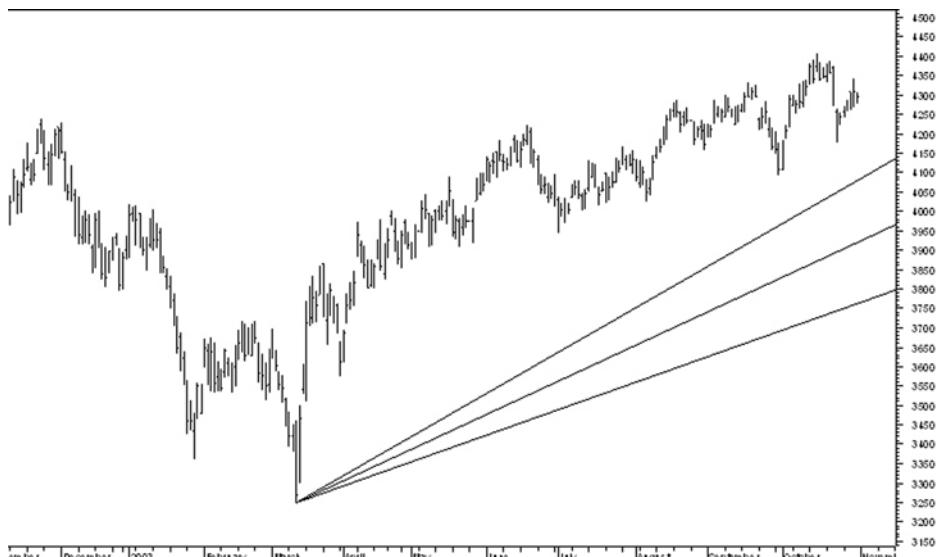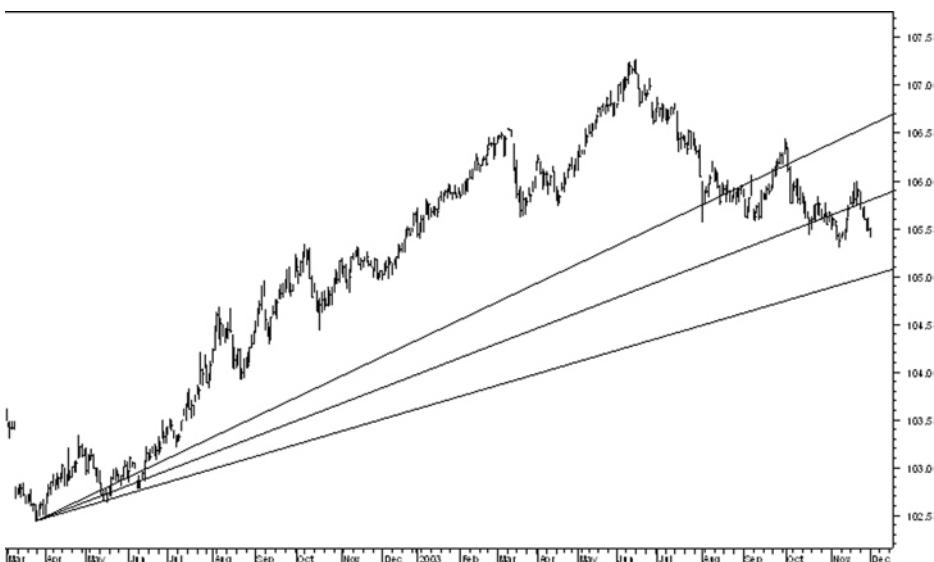
Figure 6.7

Figure 6.8

February and early March highs, but finally has come to rest and is constructed
through the late March high. Repeating an attack on the late March high has been dif-
ficult and the contract has displayed uncharacteristic subsequent behaviour with big
daily bars that only come to an end with the bounce from the 38.2% Fibonacci fan-
line. On returning to a more 'normal' daily range, the contract has seen a stately
break of the 38.2% Fibonacci fanline support and slow, almost flat progress towards
the 50% fanline. Notice that on the break of 50% the contract has one more attempt
at increasing the size of the daily bars, but this fails to develop and the sideways
action, a repeat of the behaviour in the 38.2%–50% area, has developed as the con-
tract moves towards the 61.8% fanline support. The price action is now moving fairly
far from the origin in the December low and the effectiveness of the pattern is soon
to be called into question.

   This is a very long fanline example and caution should be exercised here despite the
apparent success of the pattern after the July period. The fanlines themselves are not
offering much in the way of strong support or resistance in this example and although
there is no real reason for this, the 'art' form of technical analysis attributes this to the
holiday and weekend effect. There has been a fairly long period of price activity in this
Eurex Schatz (the two-year bond future) contract (Figure 6.9) since the high in May
2003 and the longer term bias is to the downside. The complex Head encourages this
and the Shoulders pattern, but the inability to see the break in the neckline developing
is cause for alarm here. In this example of continuing analysis, a fanline from the

Figure 6.9

December 2002 high to the March 2003 low is constructed and once that is useless the next fanline is constructed from the March low to the September high.

The analyst does not encounter too many weekend or holiday issues in the trading period following March 2003 but the Index, the Eurotop 100, remains very volatile. Notice the extreme behaviour in March with penetration of two fanlines with resistance followed by two fanlines with support. It is only on the significant break of the 50% fanline resistance at the start of April that the Index moves significantly forward, with the consolidative period above the 61.8% fanline throughout late April and late May. As the initial bearish fanline is very steep, the analyst encounters the problem of pattern redundancy fairly quickly. However, the second fanline in this analysis is only drawn from the early September 2003 high and is still valid at the end of the charting period. Notice that the angle of the pattern is not as steep as in the first one, so the effectiveness will last a lot longer. The pattern has not come under serious threat as of yet, but the two attacks in late September and late October are interesting as the Index now forms a triangle pattern (asymmetric in this case) and is very close to a wedge. At this particular stage, pattern analysis will take precedence over the fanline.

In my experience, fanlines constructed using a low as the origin are more effective than those formed from a high. This is in part psychological as on balance a significant high has a longer market memory than a low, especially if the low is not all that significant. In Figure 6.10 the construction of the first fanline produced a
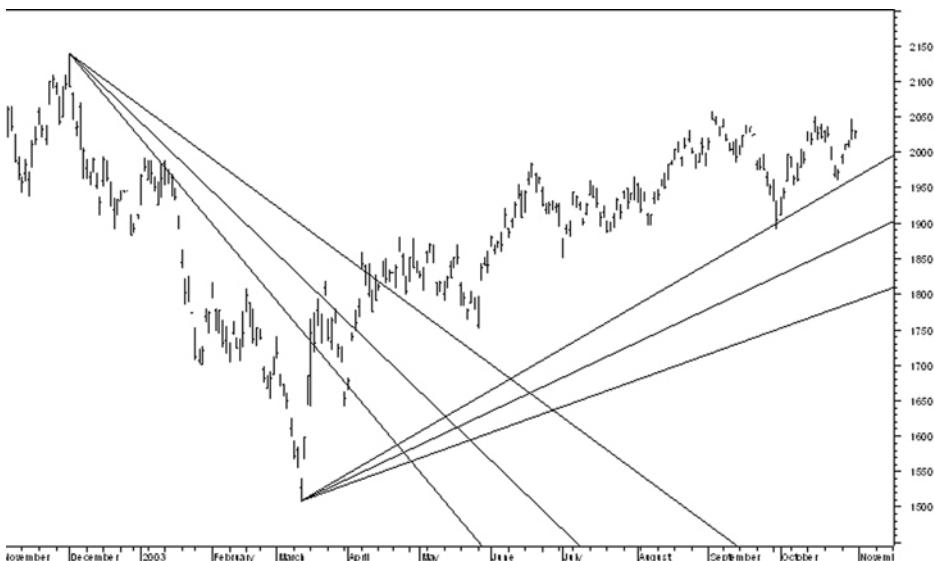
Figure 6.10

steeply angled fanline, which had a very short useful life. However, the fanline from
the low, even if it is considered at the end of a 'running fanline' activity, does seem
to have extended use. It has to be remarked that the low used in this construction
was not significant when compared to longer-term chart data, but it marked a
localised significant turning point. A prime example of the limited use of a bearish
fanline pattern is illustrated below, where the long-term weekly yield for the Italian
BTP is charted from the lofty heights of early 1995.

In Figure 6.11 the fanline is only drawn after the December 1998 low and attacks
on the various fanline resistance levels have met with limited success in the follow-
ing weeks and months. Consolidation about the 38.2% and 50% fanlines are seen
and although in real terms there is a huge time difference from the origin, in relative
terms this weekly chart is still 'young' as the extreme low is fairly close to the devel-
oping yield action, even as far as late 2003.

APPLICATION AND COMMON ERRORS IN FIBONACCI ARCS

For the technical analyst, arcs are the spoiled children of analysis. They look very
good on screen and in reports and to a non-technical reader are impressive pieces of
charting. However, they are not without their problems. As with the construction of
all Fibonacci tools, arcs need the extreme of the price (or yield or index) to have
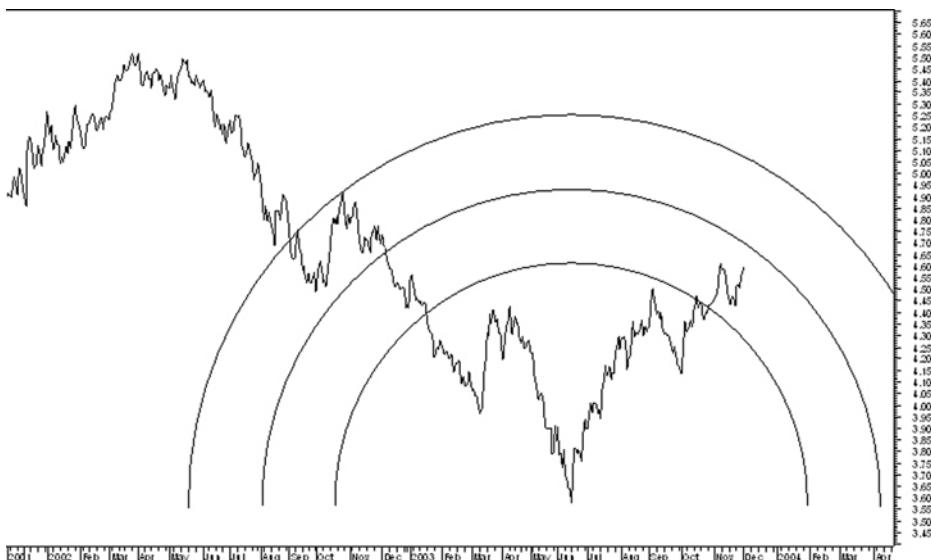
Figure 6.11

occurred before they can be drawn, but unlike fanlines, there is no element of 'time' involved; they are simply constructed from geometry. Construction is simple, the 'hidden' line joining extremes in price is constructed and on that line 38.2%, 50% and 61.8% lengths are taken. Arcs using each of these as the radius are constructed, using the extreme and not the origin as the centre. It is customary to only display these arcs as semicircles, but later in this chapter the usefulness of using the full circle will be looked at briefly.

In the discussion regarding Fibonacci fanlines their effectiveness was dependent on how close current price action was relative to the extreme value of the pattern and not relative to the origin price. This is not the case when constructing arcs as there is a direct relationship between the effectiveness of the arcs and the absolute distance between the two values used in their construction: the origin and the extreme. The next examples will show this in action, but there is a feeling that despite the construction of this tool being absolutely mechanical, the effectiveness is biased not to the science side of technical analysis but to the art. It is at this point that a note of caution has to be given in screen-based charting as the arcs are often constructed so as to appear circular relative to the screen. Therefore, depending on the scale of the price used, different 'values' of penetration can be given if the scale is extended or shrunk.

With this caveat in mind, the first example shows a very good arc pattern (Figure 6.12). Here the daily yield on the Italian BTP ten-year bond has been used and this arc
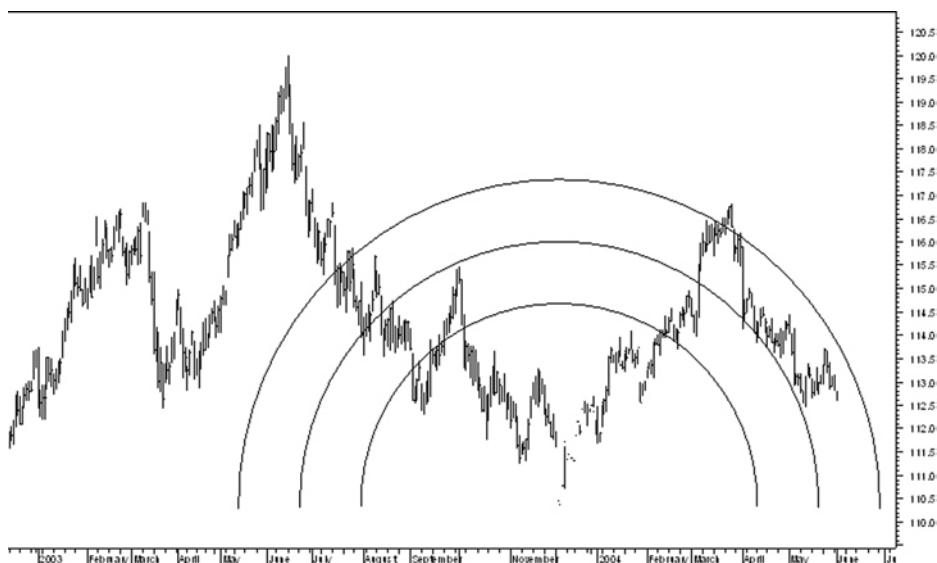
Figure 6.12
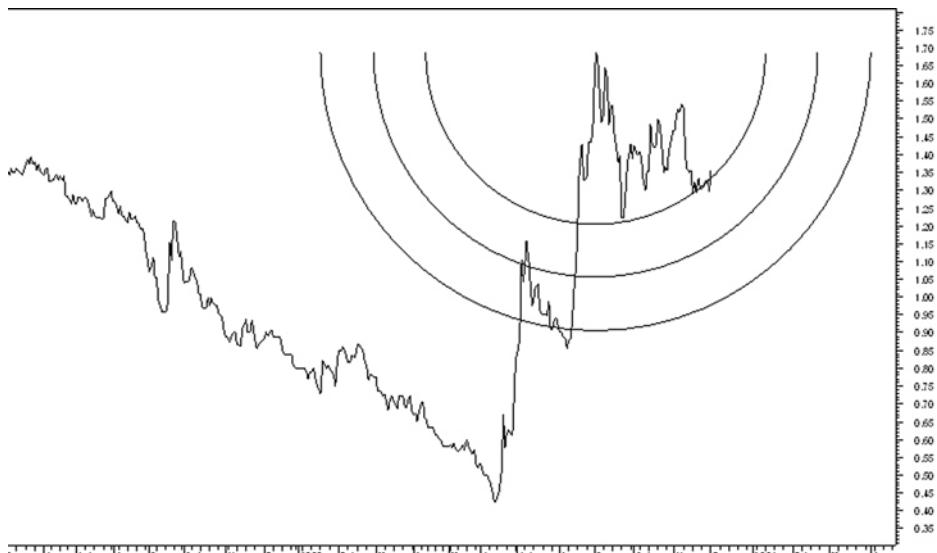
pattern is constructed using the origin at the March 2002 high and extreme at the June 2003 low. Again, as in the case of all Fibonacci tools, any price action that is seen as significantly interesting near the pattern before the development of the extreme price is purely coincidental. The focus on arcs and fanlines is on what happens after the extreme level is generated. In this case the 38.2% arc level has hindered the recovery in the yield from the 'V' bottom pattern in August, so this would have been a good target to use. The consolidation period about the 38.2% arc later in September and early October was used as a launch pad for the developing attack on the 50% arc.

Interestingly, consolidation about arcs is fairly common, especially on second and subsequent approaches. This can be seen in the following charts. In the example shown in Figure 6.13 of the Bund continuation future contract the late March–May period has seen broad consolidation about the 50% arc level, but the really interesting action was in early March where the break from the consolidation saw a strong penetration of the 50% arc level and a move towards the 61.8% arc. Notice the shape of the bull flag in March. It is very steep and starting to become long relative to the flagpole; as mentioned elsewhere, this is a danger signal. The bearish outside day and penetration of the 61.8% arc – this time as support – in late March and the increased volatility in price action signals the end of the bull move for now, which is confirmed with the gentle slide along the 50% arc level from then onwards.

In Figure 6.14, the pattern is only drawn after the extreme high in the yield of the JGB and already the effectiveness of the arcs as support can be seen. The yield has

Figure 6.13

Figure 6.14
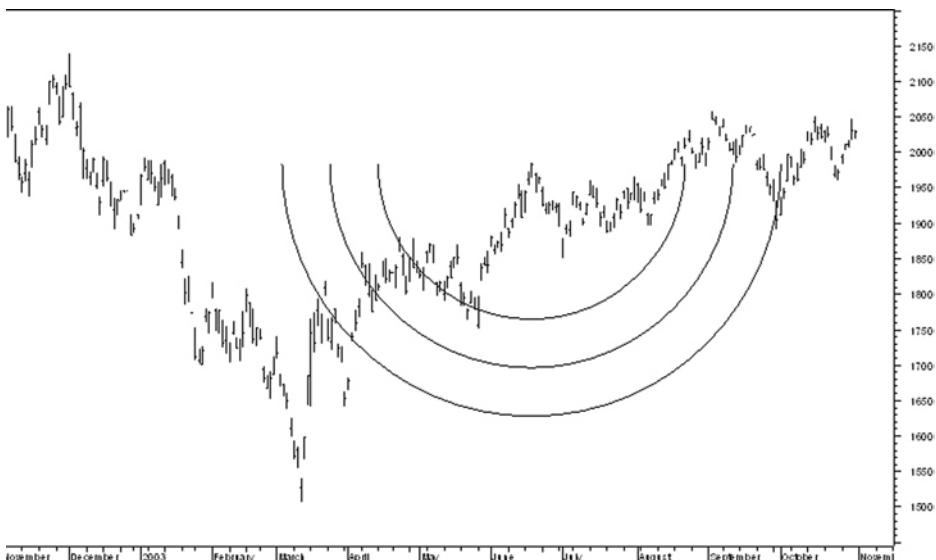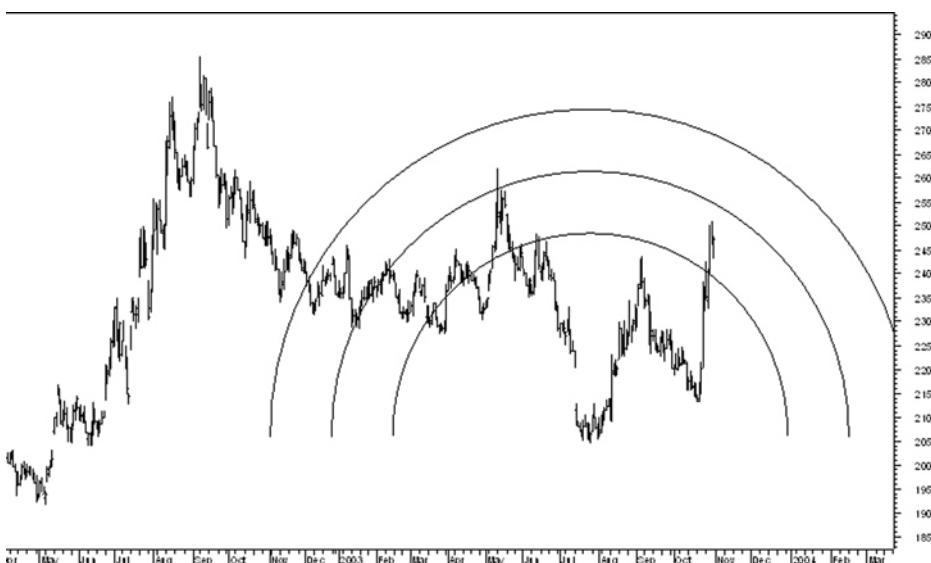
Figure 6.15

not been able to break through this level and it has become the focus of attention as further bearish evidence is developing. The formation of the bear flag at the end of the chart adds to the overall negative tone, which should see the yield break through the 38.2% arc and move on to the 50% arc and lower. There is little to encourage a recovery at this stage.

In Figure 6.15, the Eurotop 100 Index, analysis suffers from a similar problem, as was encountered with the 'running fanlines', but there is slightly less necessity in redrawing the arcs at this stage as time is not involved overtly. The centre of the arc is set at the June high and origin at the March low, but this time the arcs have not been successful as price action has not attacked them very often. These arcs may indeed profit from being redrawn but it is more a function of the broadly sideways index action that is giving rise to this ineffectiveness rather than choosing an extreme high as the centre of the arc construction. When encountering a sideways moving environment Fibonacci arcs are fairly useless as traditional patterns are more important here. Trendlines and channels would give a better overview of what is happening in this case.

Looking at the rally in corn in the next example, shown in Figure 6.16, the attempt in September to attack the 3.2% arc failed to develop and it was only on the break from the congestion in late October that the bounce has been successful. In addition, the rally has seen the formation of a bull flag ahead of the 38.2% arc this time and has seen an additional pattern broken to the upside. This time it is the triangle that has

Figure 6.16

suffered. Triangles are usually continuation patterns, but every now and again there is a break in the opposite direction, as in this case. These two pieces of bullish evidence, coupled with the close proximity of the 50% arc, should keep the bias higher a little longer. This pattern breakout is encouraged by the close proximity to the centre of the arcs at the July low, so accumulated 'errors' from the weekend and holiday issues are not so important here.

In Figure 6.17, a significant time has elapsed since the creation of the high in May 2003 and the huge pattern is not as convincing as in the previous examples. Here the Schatz contract is testing the 38.2% arc, but given the lack of conviction in this pattern and the more important complex Head and Shoulders formation that is playing out, a break in the arc is not as significant as the Head and Shoulders breaking lower. This is a prime example of putting evidence in order, where patterns have to take priority over retracement tools.

In this final example of the T-bond future contract (see Figure 6.18), recent action has been broadly within the 38.2% and 50% arc areas and there is growing evidence that this consolidative period is coming to an end. Despite the arc being large (origin in March 2002 and extreme high in June 2003), current action is relatively close to the extreme, so again the arc pattern gains from this positioning of being close to the extreme value. Interestingly, on a break of the 50% arc the contract will fulfil the conditions necessary for the completion of the little Head and Shoulders formation on the daily chart, with the neckline joining the August 2003 low and the October 2003
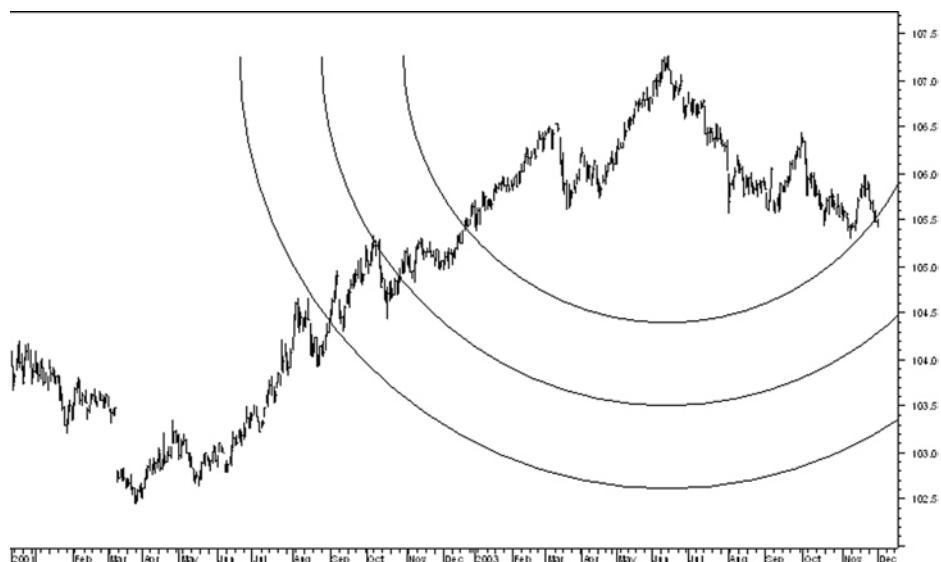
Figure 6.17
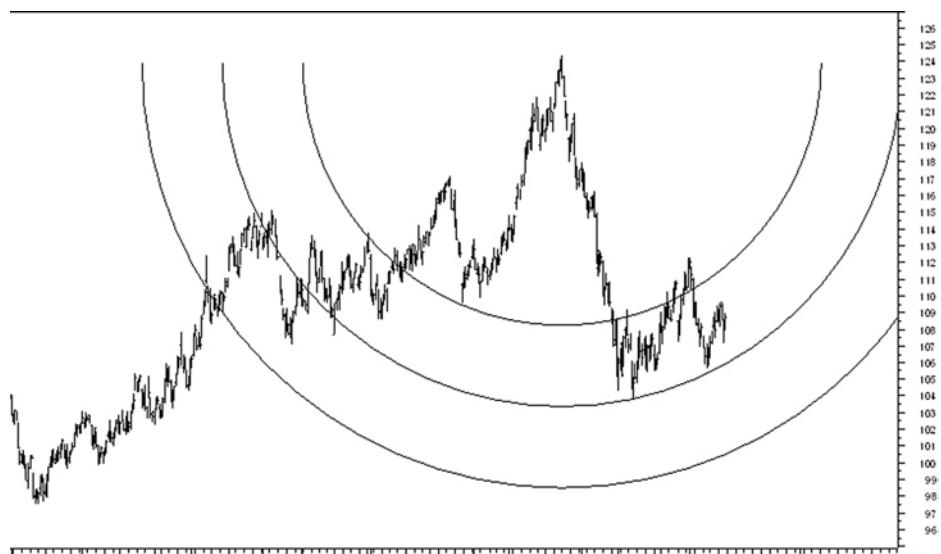
Figure 6.18

congestive lows. This is an example of a sloping neckline, so the measurement of a price objective will be a little less than that used when a horizontal neckline is created. It also shows that the conditions necessary, that the right shoulder is smaller in amplitude and in period, suggestive of lack of impetus on the upside, are being met.

FIBONACCI CIRCLES
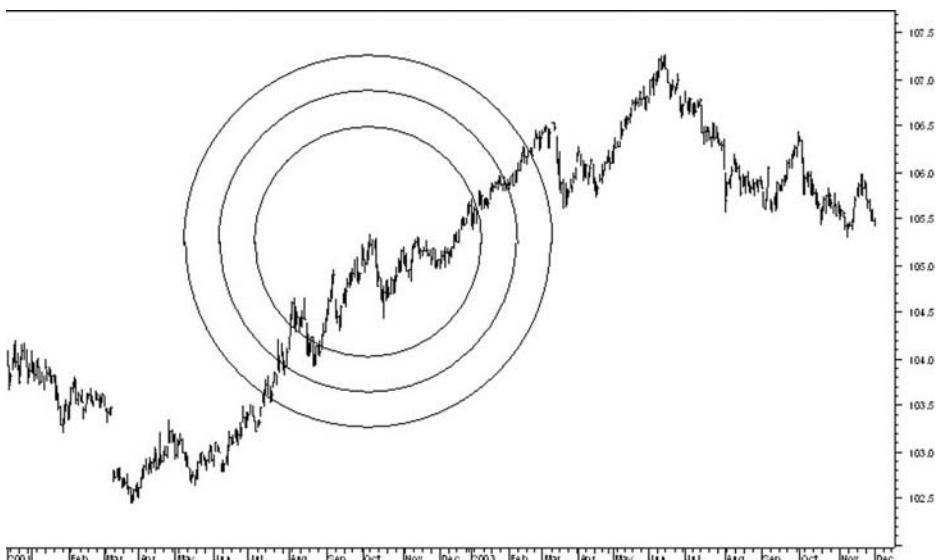
Earlier in this chapter on the discussion of using the Fibonacci arc, the proposal was made that the extension of the arc could be useful. This would turn them into Fibonacci circles, and if successful would be useful where price action has moved higher out of the more traditional semicircular arc.

As in the discussion above about the problems with the arc moving if either axis is changed, the problems with creating circles using the arc function will double this error problem and the second arc will have to be constantly altered to fit in with the shape. However, this is not onerous. In the following examples I have moved the centre of the arc to a previous significant high or low, as can be seen, and constructed the other half of the circle on this new centre. Some interesting analysis results are obtained.

In the case of the Schatz future contract, the centre is on the high in early October 2002. It can be seen from Figure 6.19 that the top half of the circle does offer some

Figure 6.19
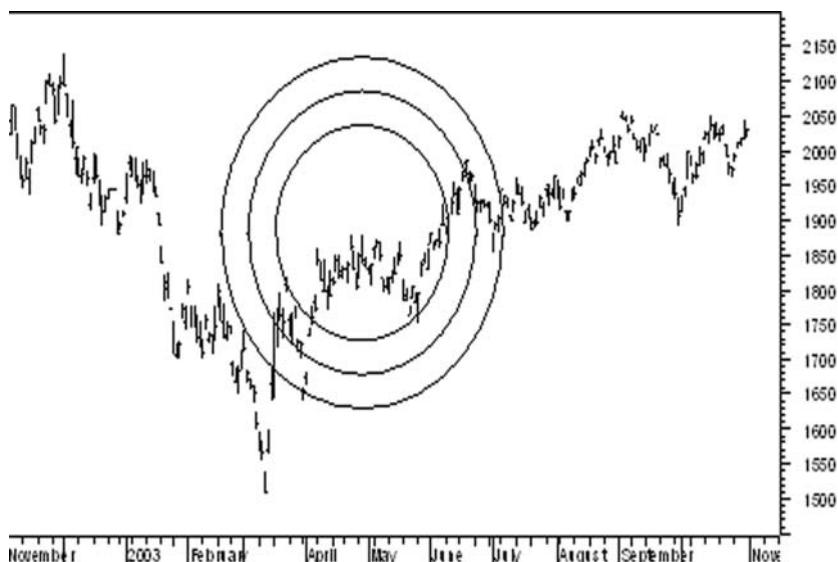
Figure 6.20

degree of resistance to the price action, especially in January 2003 at the 38.2% arc and February at the 50% arc, and that following the break of the 61.8% arc the contract suffered a major collapse in relative price terms. However, the top arc has been very useful in predicting modest areas of resistance to the rallying price.

The centre for the US T-bond is moved to the congestive high seen in September 2002 and again here the arc resistance levels are good (see Figure 6.20). In particular, the 50% top arc test in early 2003 is followed by a slide lower again and the original arc comes under pressure. The contract has displayed a relatively dull range trading throughout to the September 2002–January 2003 area, but the breakout seen later that month sees the top arc under pressure. Some key resistance levels have come under pressure at the 38.2% and 50% arc levels, but it is only once the 61.8% resistance arc is taken out that the real bullish move develops.

These two examples are set on trending markets (bullish and sideways) where otherwise there is very little evidence on display that either contract is threatening to move out of the dominant pattern. This is especially true of the T-bond, which, despite having a wide range overall, sentiment has not improved throughout the last quarter of 2002 as the broad consolidation continues. Analysts will struggle to find levels that are indicative of sentiment change and are limited to trendline and channel resistance levels initially. These are fairly basic tools and in futures markets regularly give false triggers. It is the adoption of further analysis tools (momentum, moving averages, further patterns) that will give confidence to an approaching

Figure 6.21

developing move and until then the contracts remain dull, if profitable. Technical analysis is about timing of positions – when to get out and when to get in – and the analyst will have to use all the skills and tools available to get these levels and times correct. This experiment with the second arc is one such method to use and it is expected that the circle will be of greater value to the analyst in a market that is more exciting or has perhaps started to make a break out of a period of consolidation or long trend.

The following examples show this is indeed the case. Firstly, the Eurotop 100 Index in Figure 6.21 has the centre of the circle in the middle of a period of consolidation in late April 2003, which sees a traditional arc acting as support in late May. This consolidation is an unorthodox local rounding top formation, but is too choppy to really have this name. The subsequent recovery bounce sees the top of the congestion taken out and the steep bull channel moves towards the top arc initially at 38.2% and tops out just ahead of the strong 50% arc resistance level. So far it looks as if for a change the 50% 'synthetic' Fibonacci level is key in the formation of the circle, rather than of only moderate importance elsewhere in Fibonacci studies. Notice that the see-saw pattern in this Index continues throughout the July–early August period before gaining enough momentum to break much higher.

Turning now to experiments with corrective market moves, the first example is of the yield in the 10Y UK Gilt with the centre of the arcs set at the low in early October 2002 with the origin at the May 2002 high (see Figure 6.22). Here the 38.2% resistance
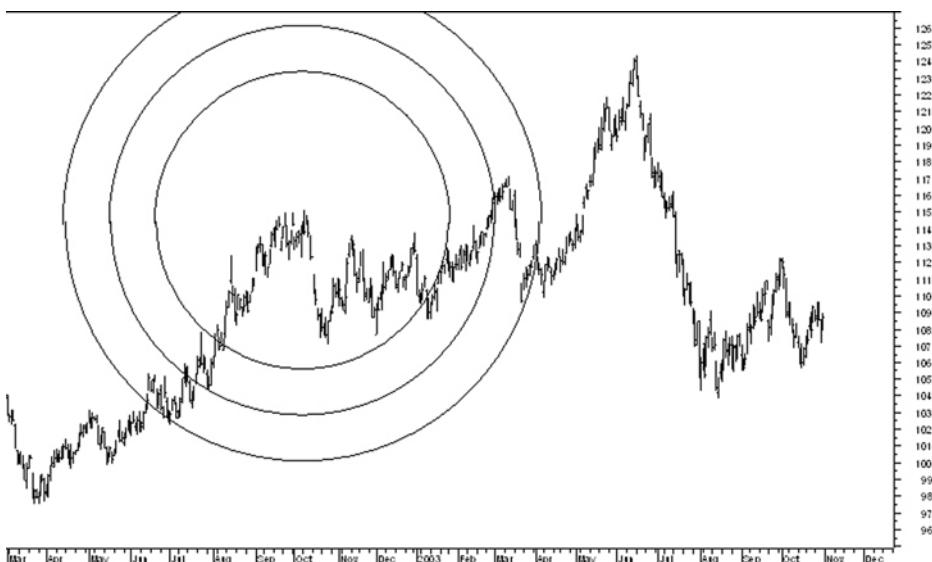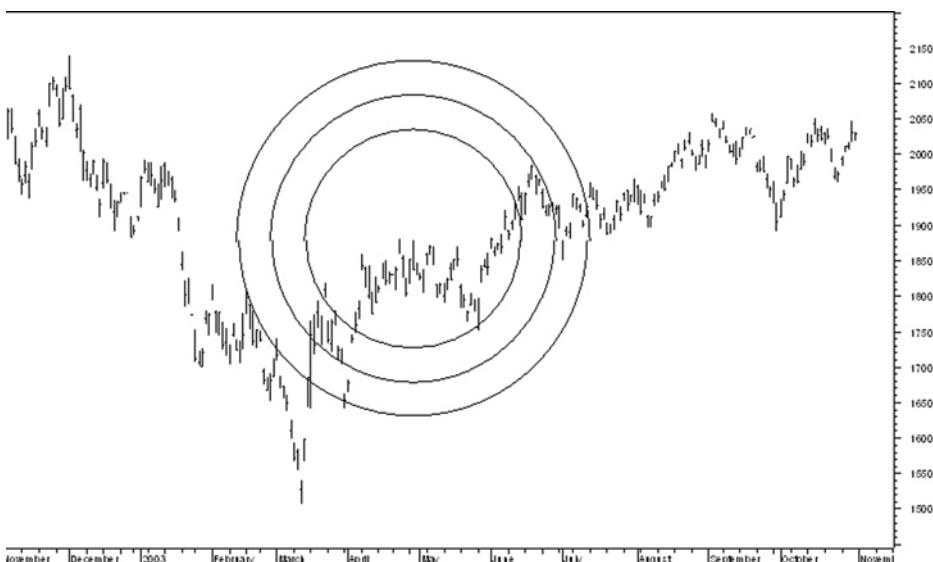
Figure 6.22

top arc that completes the circle has been very good at stemming a recovery move and later the break of the 61.8% circle in late March 2003 proves the worth of this experiment. Much of this yield move is seen attacking the bottom arc as the downtrend develops, but notice the quick change in direction shortly after the break of the 61.8% arc and move back to testing the top of the 61.8% circle. This whole pattern is very short-lived and therefore does not suffer from the effects of too many weekends and holidays, so there can be increased reliance on this pattern.

A better example of the circle in action comes in this example of the yield chart of the ten-year JGB, where the centre of the circles is set at the July 2003 high and origin at the June 2003 low (see Figure 6.23). Here the rally in the yield in August is false as it is a rollover problem (see Appendix 1), but nevertheless these handy arcs are showing the way as key resistance levels to the move. In this case the circle is a good tool to use as there has not been trading in the current area all year and the recovery move in yield is within the circles and gives fairly good objectives. There has been increased volatility in the yield during this period and the circle has proved invaluable in targeting yield levels and supports as the yield pattern moves away from the centre of the circle. Notice here that the development of the triangle since August would suggest a yield improvement as the move before then was positive, but the analyst has to remember that that initial yield move was on the back of a rollover of benchmarks so the normal rules will not apply here. It would be safer to notice the triangle pattern but not to take too much from it at this stage and wait to

Figure 6.23

see whether in fact a yield rally is going to take place. I would be very unsure about measurement objectives in any case.

In this final example of the LIFFE FTSE-100 futures contract (see Figure 6.24), there are two centres used for the circles, the first being the high of March 2003 and the origin at the January 2003 high, and the second the high in mid June of that year with the origin in this case at the March low. Looking at the first of these, it can be seen that the traditional arc worked well as support, especially at the end of March, and then became redundant thereafter. However, application of the second arc to complete the circle shows that the top halves are indeed excellent resistance and target levels for the next two months. Only once the circle has been broken completely does this pattern fall into misuse. The larger circle pattern is used during a period of moderate improvement but the contract is moving within a fairly broad channel. This will reduce some of the effectiveness of the circles for now but notice that resistance and support levels can be gained from appropriate identification of the circle top, especially on the attack in the 4400 area. However, this pattern will suffer from the nature of its development as it is in part constructed from a running tops environment and although in the case of arcs the strong effect from time has been removed, the extension of the pattern makes the arc base and top have limited potential for target levels as the bars develop.

Fanlines are interesting patterns to see in action. More often than not there is some constant behaviour as the price approaches a line, and this is repeated
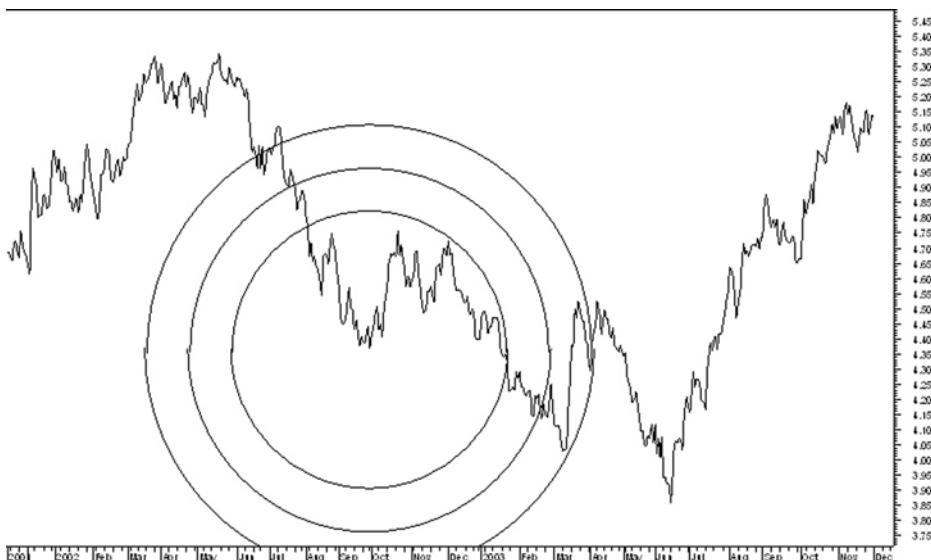
Figure 6.24

throughout the pattern as it comes under attack. This can be something as simple as a short-term consolidation. This is indicative of the general attrition between buyers and sellers seeing a break in the line as difficult. This can generally result in a flag pattern developing and will give added impetus and importance to the dominant primary move. However, an analyst will have to prepare for flags failing in this instance, signalling the end of the battle for penetration of the fanline and a reversal being imminent. In the case of a bearish pattern from a high, recovery in price will see the 38.2% level under pressure, which is usually encouraged by the formation of small flag or pennant formations or at least some short consolidation period before the pattern is breached. It should be remembered that in recovery after a long downtrend the geometry of the fanline may mean that it is fairly far off from the price action, at least at the start of a recovery. There is some way to go before calling a successful bounce, which is sometimes easier to see from vertical retracement levels, but, as an early warning, bearish fanlines are good enough. They come into their own on occasions where sideways consolidation develops after the downtrend, but are not always used to trigger a recovery as on many occasions a sideways move which drifts towards a local fanline will then see sudden price action develop once it has been taken out by the sideways move. Perhaps the most surprising thing about fanlines is that the 38.2% fanline grows in strength the longer it is not attacked and if after an extended period of consolidation the fanline comes under pressure and

holds firm, a return to the primary move lower is suggested, and could be violent. However, this is not the case where the fanline is bullish, i.e. acts as a support initially. Here the pattern behaves more like a traditional Fibonacci analysis with the 38.2% initial level not as significant and often comes under temporary attack, especially if the price is trying to make a break to new highs and needs to base first. How long the pattern has been in existence is critical to the success as a short, steep pattern generally completes, whereas one where significant time has elapsed since the formation of the extreme price can result in the pattern not being successful at all. There are no hard and fast rules as to what the optimal time after the formation of the extreme price is, but it has to be appropriate to each asset class and indeed to each asset within that class. This is yet another example of the art of technical analysis in operation! It is not a waste of time to study the particular chart behaviour in the past. Sometimes the price action that was seen the last time a fanline came under pressure can be indicative of the current situation, especially if the pattern itself is fairly steep. Long-term fanlines suffer from the weekend and holiday problems as outlined above, but can give a general feel as to the direction of the price. It can be disheartening for an analyst to choose an origin and extreme and see the resulting fanline pattern constructed too far from the current price. Although this is correct, it may be the ideal prompt to look at a closer origin, even if that new origin is not as key as the first. In this example of the Schatz futures (Figure 6.25) using the June high as the origin and the November low as the extreme, the current price is still
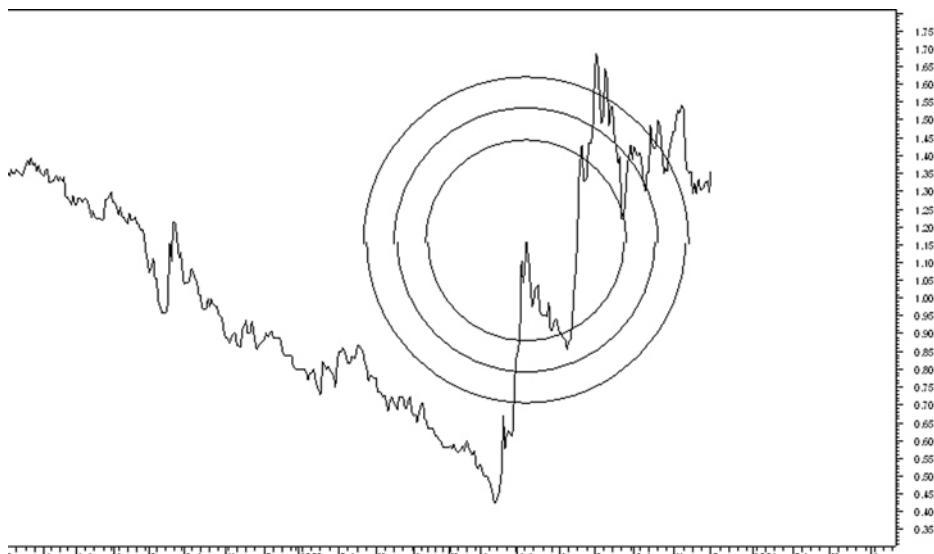
Figure 6.25
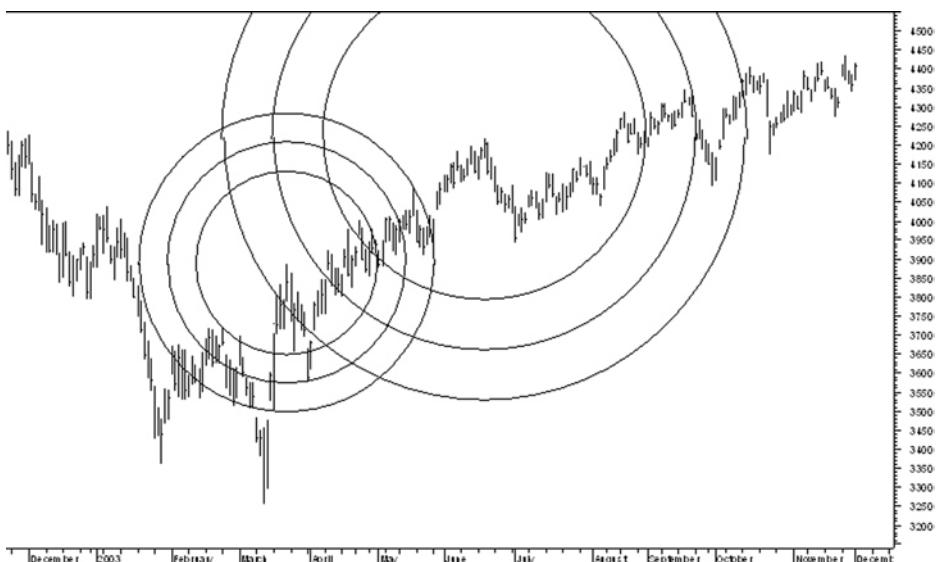
Figure 6.26

some way from attacking the pattern. It may be appropriate when gathering early bullish recovery signals to have the origin set at the key September high and use the same extreme low. This gives a more volatile chart result but would signal the end of the threatened bear trend if the 61.8% retracement level comes under pressure again, as the attempt in early November was not successful as it ran up against the 38.2% fanline from the bigger move. This is an excellent example of using long- and short-term fans together as it identifies congestive regions very clearly.

Similarly with the Bund chart in Figure 6.26, the June high is very far off and per- haps the local high from March 2004 is of greater value once the recent April low is allocated as the extreme price. Again these two fanlines identify congestive resist- ance levels above the 61.8% of the larger fan and below the 38.2% of the smaller fan. This zone has been difficult to cross and with the extension conjunction of both these fanlines acting to limit upside potential, the bias is seen switching lower once again. Notice that in the shorter fanline the 50% and 61.8% fanlines have not come under attack at all. The 61.8% fanline from the larger pattern has dominated price action since the sharp move lower in later March, both as support initially and later as resistance. This successful line will be key as the contract moves forward.

It can be seen from the last two examples that it is sometimes not enough to apply a single fanline to a chart. Other analyses have to be added to make the correct investment decisions, whether that be the identification of patterns or adding a fur- ther Fibonacci analysis. It is interesting to see in the latter two examples how various

fanlines interact with each other and reinforce levels as key resistance and support. This is a fairly common situation within technical analysis where conjunctions of pattern and retracements or different kinds of retracement reinforce key levels. This is more common with Fibonacci analysis for some reason, especially where vertical retracement levels coincide with arcs or fanlines. This interaction should give the analyst greater encouragement and confidence in the outlook.

In my experience, fanlines work better when constructed with a low as the origin. There is something appealing about a fanline that is playing out correctly, as the additional influence of recent formed prices on the way up add to the overall position and outlook. This is often not the case with fanlines drawn from a high, especially if that high is spiked in pattern. Notice also that in cases of a negative fanline, price action struggles more than normally to reach any of the fanlines themselves. This is in part due to the sentiment that exists in a bearish market; the force of a downtrend is greater. I like to consider this as in part being due to the addition of gravity, which also works when markets are bullish. New highs are notoriously difficult to make and to sustain as there is always a significant element of bullish investors who will think that the end of the rally is close and that they do not want to be left standing once the reversal takes place. The loss of profit (hence greed) is by far the greatest opponent to a bullish market for, despite what patterns and momentum are doing, if there are enough participants believing that the end is nigh, then it will come true. Look at the behaviour in the Bund charts in Figures 6.27 and 6.28; the spike high comes in May

Figure 6.27

Figure 6.28

after a considerable rally but price action has not built in a succession of key conges-
tive supports to assist. It has to be remembered that in a rally as many congestive sup-
port consolidation periods as necessary are needed to sustain the move. Corrective
moves can develop, as was the case with the correction in later May, but where there
is no scaffolding the price channel will break, and break suddenly and violently as
happened in June. Once a trend is in motion it is very difficult to stop. That is one of
the primary axioms of technical analysis, and no trend is more difficult to stop than a
runaway bear trend, as can be seen in the May–November period on the Bund chart.
Even the attempts to recover were unsuccessful in September, as key resistance lev-
els did not come under much pressure. It was only on the recovery from the signifi-
cant channel support in December that saw a recovery of note.

In this chapter the problem of a running high was identified and some solutions
to dealing with this phenomena were discussed. Running highs within shallow bull
channels as seen earlier are difficult to compensate and there may be little or no
additional clear evidence for redrawing a fairly good fanline to take account of new
highs (or lows in the case of a bearish running low). Unless the analyst is 100% con-
fident in using a fanline as a target level then a broad brush attitude can be adopted
here. In any case, I am wary of using a fanline value as a target as this has to change
as the time axis progresses. It is better and fairly sufficient to use the fanline pattern
as the target rather than one particular set value of that line at a certain date. Fore-
casting dates is notoriously difficult to do and there are other methods of predicting

key dates, some covered elsewhere in this book (Chapter 9), that can be useful in identifying a key date.

It may be a good idea to use a fanline as an indicator of the speed of the move. After all, the other name for fanlines is speed lines. This interpretation is useful as it uses the angle of the fanline rather than the actual line to tell what is going on with the price. A glance at a chart with fanlines can tell if the price is moving steeper than, shallower than or equally as fast as a particular fanline. This is more on the art side of technical analysis than on the science. A good example of this comes early in this chapter in Figure 6.5, where the July–September 2003 rally in the FTSE-100 futures is very strong relative to the 38.2% fanline but the final rally is not as sharp. This could be a good indicator of the contract running out of steam after the succession of running highs encountered in September and October.

I prefer to use the fanline not only for indications of support levels (or resistance) but also of sentiment. Although there is no scientific measure to be applied to this use, the artist technical analyst can use the pattern as a gauge of the balance of bulls and bears in the market, especially if one line is being very difficult to break. This is indicative of heightened tension between the opposing forces of bullish and bearish – the price war if you will. Failure on a consistent basis to break through key resistance or support fanlines should encourage the busy analyst to take a closer look at what is indeed going on and to apply other tools such as momentum, market indicators such as volume and open interest if available. From these additional tools an analyst should be able to generate an analysis. In short, the fanline should be used as the trigger mechanism to apply some of the other excellent tools at their disposal.

SUMMARY

This chapter has looked at applications of the arc and fanline techniques of Fibonacci analysis. Both of these are interesting and popular applications to use but suffer from misunderstanding and misapplication. It is critical when using these patterns for forecasting that the various drawbacks are remembered.

Fanlines are the easier of the two patterns to consider. Also known as 'speed' lines, they offer an ideal price objective zone for the analyst to focus upon, and with the latent function of 'time' added in there is some argument for using these over the traditional vertical retracement pattern. However, it is this very inclusion of time that causes mistakes to develop. There is no accounting for either weekend or market holidays and as the price bar moves forward the effectiveness is dimmed. The pattern remains valuable as long as current action is close to the extreme value used in construction. How far back in time this takes place is of fairly mundane importance, but it is preferable that the origin is not too distant. The geometry of the pattern is key. It

is preferable to have a fairly steep fanline pattern, where the pattern comes to an end fairly quickly, as this will limit the effect of the holiday and weekend issue and keep the analyst focused on what happens next, especially if there is going to be a succession of new highs created in a relatively short term and the origin is to remain unchanged. This is a headache for analysts and in times of 'running fanlines' other techniques may be more appropriate.

In the case of the arc pattern, time has been removed and the arcs are created from simple geometry. However, because most charting packages will prefer to display the arcs as true arcs of a circle, the incidental points where price cuts the pattern will change depending not only on the time axis but on the scale of the price axis. The arc will not change shape if the scale is moved, hence resulting in different positions for the price cutting through the arc pattern.

7
Application and Common Errors in Fibonacci Timelines

The mis-use of Fibonacci timelines: a very critical analysis. Effectiveness of timelines. Construction of and critical placing of the ORIGIN. Comparison with Gann analysis Golden Square. Comparison with more traditional cycle theory. Timescales as moving averages. Why bother using them at all?

As mentioned in previous chapters, I am not a huge fan of Fibonacci timescales. This seems just too coincidental to be of any significance and although there seems to be occasions when the timescale pattern works, I feel that this is by far outweighed by errors in the day count once weekends and holiday periods are factored in. Users of Fibonacci timescales should be aware of these issues when using the pattern on a chart. For completeness, this chapter will address timescales and their application and look at ways of improving their use.

Looking at the application of the Fibonacci days pattern on a daily chart in the first example of the five-year Bobl contract (Figure 7.1), it can be seen that the origin is placed at the June 2003 high and the days, 1, 1, 2, 3, 5, etc., are constructed accordingly. This pattern works fairly well in the initial Fibonacci days where key dates are defined. The good thing about Fibonacci timescales is that they can be plotted some time in advance so key notable dates can be identified. Notice the sharp moves following Fibonacci days 3, 5 and 13, but there is a day delay after that when key moves are identified. This shows the weekend effect once again. However, in this example the initial period works out well but of course does not last long.

In the example of the ten-year Bund contract (Figure 7.2), the initial period following construction at the April 2002 low has not been very effective and it is only
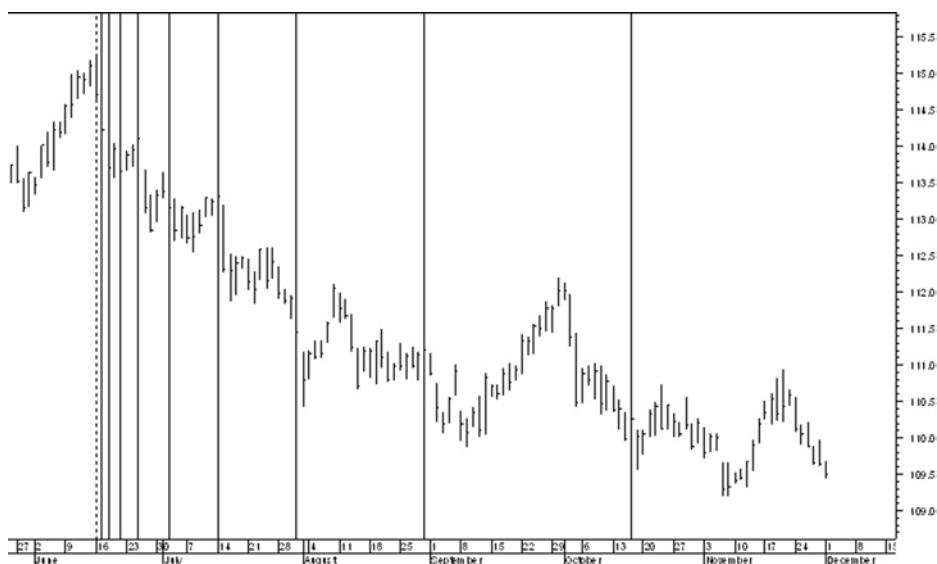
Figure 7.1
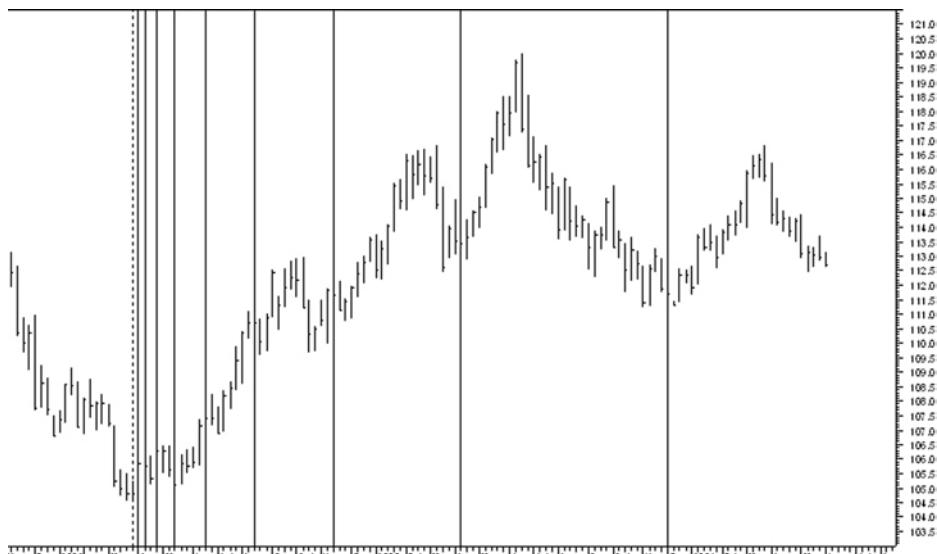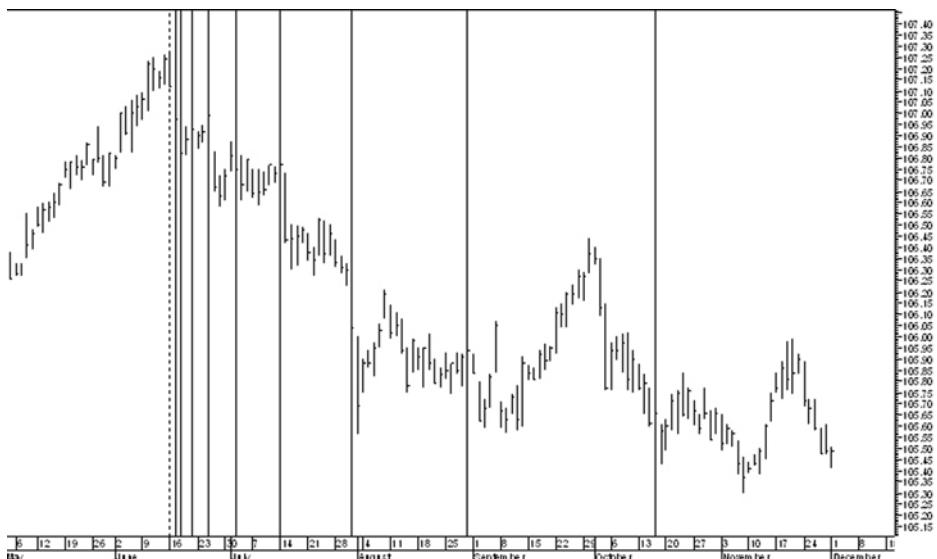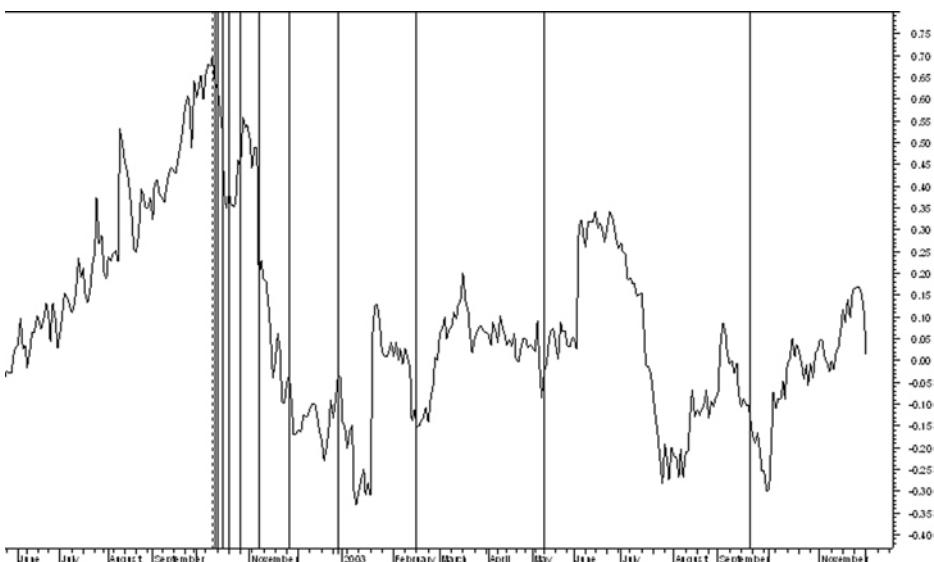
Figure 7.2

until the 34th timeline that some inference can be taken. This is a problem for analysts as already it looks as if the application of this pattern cannot be successfully predicted and by the time day 34 comes the analyst will have given up and moved on to other techniques. Could this be due to the volume traded? The Bund has a large daily volume and open interest on the exchange, which is much more than in the case of the Bobl. What would the effect of volume have on the effectiveness of the timelines? A ten-year instrument is used by the market for more than risk transfer (one of the primary functions of a futures contract) and price discovery (the second function), but is used as a benchmark-hedging tool. This is also true in the cases of five- and two-year instruments, but there appear to be many more different groups using the ten-year area than is the case in shorter period futures. The effect of the action of these different users could be enough to see price action differences for a shorter period futures contract. As we know from crowd behaviour, the goal and demand of a group is paramount to its survival as an entity and in the case of the Bund future there are many different groups apparent, all with fairly dissimilar objectives.

Confirmation of some of the above hypotheses comes from the application of the timelines to the two-year Schatz contract (see Figure 7.3). Here again they seem to work well in the initial stages, as expected, but start to fail as time advances. However, there is not such an element of group dynamics here and certainly in the initial

Figure 7.3

Figure 7.4

periods these lines can be used effectively. It would appear that the constituents of
the market players and their varying demands will have a strong effect on how suc-
cessful this tool can be.

The analyst would be well advised to take extreme caution with the application of
Fibonacci timelines in markets composed of players with different goals and needs.
In markets where risk transfer and price discovery are primary and the instrument is
not used for other needs then the tool works fairly well, as can be seen in the fol-
lowing examples of yield analysis.

In this example of the ten-year spread of the German bund and ten-year US Treasury
Note yield timescales work fairly well up to the 34th period, as shown in Figure 7.4.
Key spread move days are seen following all the initial moves and a recovery in the
21st period in May 2003. However, benchmark spread analysis suffers from the fre-
quent problems raised with a change of benchmark bond. This is most marked in the
late July period in the chart where the Note changes but the Bund bond stays the same.
This can give rise to a false impression on a yield spread chart and at that stage the ana-
lyst would not want to be using too many tools that relied upon levels constructed from
previous benchmarks. At a rollover where there is a gap or big move I would prefer to
use more traditional tools and leave any tool that relies on a relationship with previous
data for construction well out of the picture, as is the case here.

In this example of the Swedish ten-year bond there are fewer rollover issues
involved as the issue of new Swedish government stock uses a different method, as
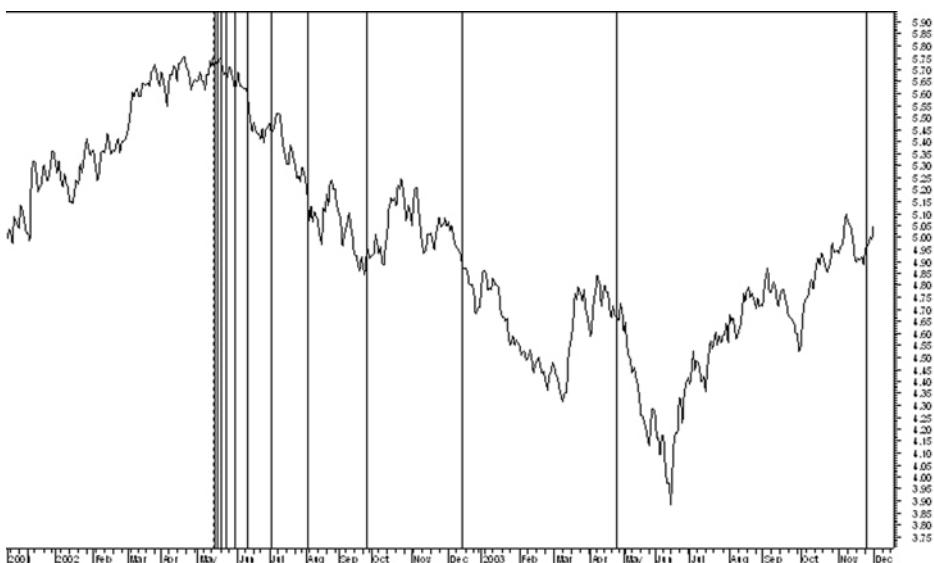
Figure 7.5

explained in Appendix 1. The chart is fairly simple from the high in May 2002 but the fanlines fail to capture any significant date after the eighth period timeline (see Figure 7.5).

In this example of the Bund versus the Swiss 10Y Government bonds, again there are few rollover issues involved and taking the origin at the significant (at that time) low in early September 2002 some key days are identified (see Figure 7.6). However, even in this chart the timelines are not very effective as they are often early or late, but at least they pick up some of the days when something is about to happen. Notice the break of the 34th timeframe which coincides with a break in congestive support. The next move gains from this conjunction of analysis tools and the sudden move lower in retrospect is the start of the major decline to the June 2003 low. It is not surprising that the 'V' bottom is predicted by Fibonacci timelines as they are not a tool to be used for predicting extremes of high and low, but are better suited to identifying days where interesting events should take place, such as outside days, reversals or other changes in direction. This is best noticed in the 89th timeframe where wide yield spread volatility switches to a period of more subdued spread action.

This example of the ten-year bund spread over the ten-year JGB shows the timelines in a better light as some major changes in direction and behaviour are identified (see Figure 7.7), especially in the 13th period where the consolidation comes to an end in early July 2002, in the 21st period where the downtrend comes to a stop if only briefly and the 55th period repeats the action of the 21st and the major slide is seen at the 89th

Figure 7.6
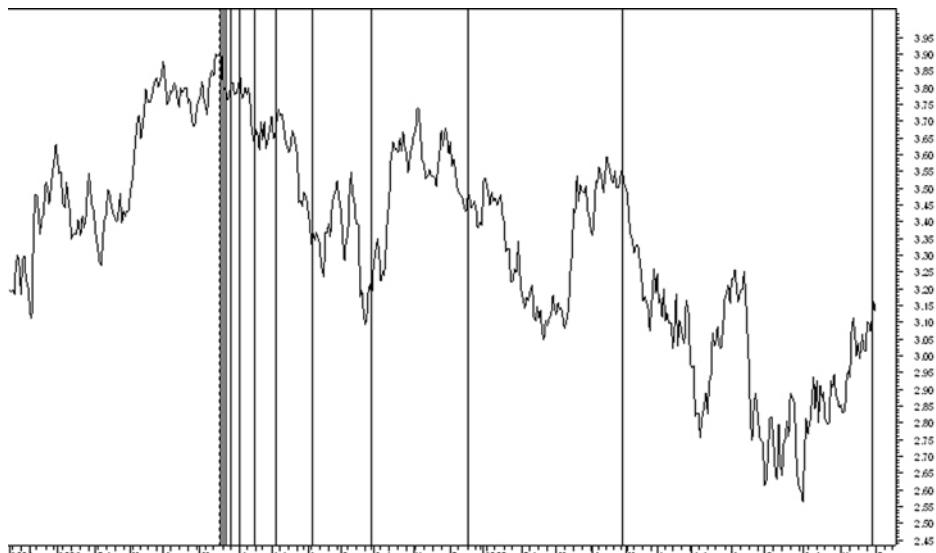
Figure 7.7

period. Interestingly, the 144th period at the end of the chart comes in just as the spread is running out of steam after breaking out of a small bull channel. It is important to note that in this particular chart there are some common behaviours apparent as the Fibonacci timeline approaches and is passed and the spread moves from one behaviour to that of many more consolidative and tighter ranges. This behaviour is also seen in many of the previous examples but was not as pronounced.

As mentioned previously, the application of timescales fails to address the fact that weekends are seen as non-trading days. Therein lies the problem. There is very little to be gained after, say, the 10th vertical day (the 55th period) from the above charts. In the very short term there is some usefulness, as can be seen from the above examples, but major projections for a key day are not valid beyond there. However, in the case of Fibonacci timescales when applied to weekly and longer period charts, here this jury is still out. The problems associated with having weekends and holidays not accounted for on the barchart are removed and the Fibonacci weeks chart looks better in this case. However, I have to question the appropriateness of looking at a weekly chart using Fibonacci timelines as an analysis tool as in many cases (such as front month maturity futures contracts) there may not be a significant price history unless some form of continuation chart is used. I would suggest that using Fibonacci weekly timescales is better suited for Forex and equity analysis, rather than more traditional futures contracts. Of course, yield analysis falls into the former category, as seen above, as there is still a notional yield for fixed income instruments whether there is a current price or not, as using the Friday close price can give a theoretical value in yield for Saturday and Sunday.

The weeks pattern will now be dealt with in some detail using the following examples. The weekly chart for the Schatz futures confirms the initial supposition that the timelines cannot be used for more than predicting when interesting changes are about to happen (see Figure 7.8). No locally significant high or low is picked out but the timelines to predict when there is going to be a change in behaviour from bullish recovery (see the October–November period in 2002 and where consolidation is coming to an end in April 2003). There is very little additional information here.

Interestingly, the Bund weekly chart (Figure 7.9) is more useful than the daily chart as again the turning points in behaviour are better signalled. Some are late, especially the sharp change in direction from the highs in June 2003, and some early, as is the case in October 2002, but here the pattern works well as a warning tool for analysts. The failure to pick out key reversal weeks is not worrying if the pattern is only used with its limited abilities and picking out highs and significant lows should be left for other analysis methods. This is the same with the Bobl chart (Figure 7.10).

From the previous examples it can be seen that the placing of the origin is critical. While it seems more natural to have the origin placed at a significant high or low, I feel there is an argument needing to be addressed as to what happens on placing the origin
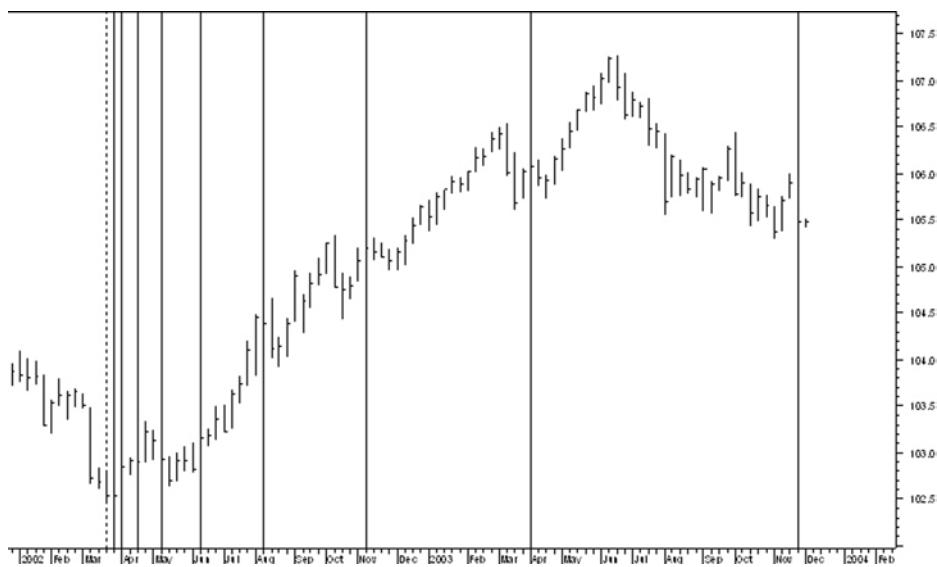
Figure 7.8
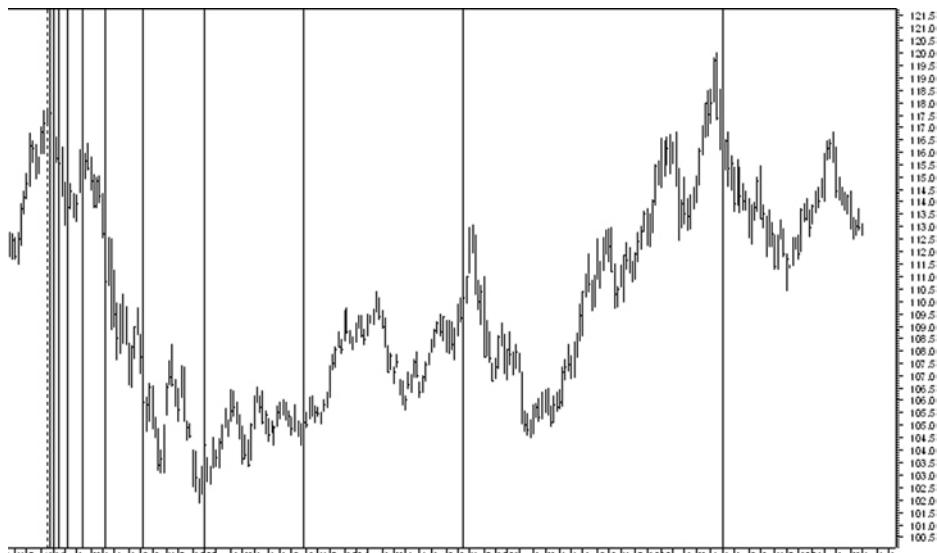
Figure 7.9
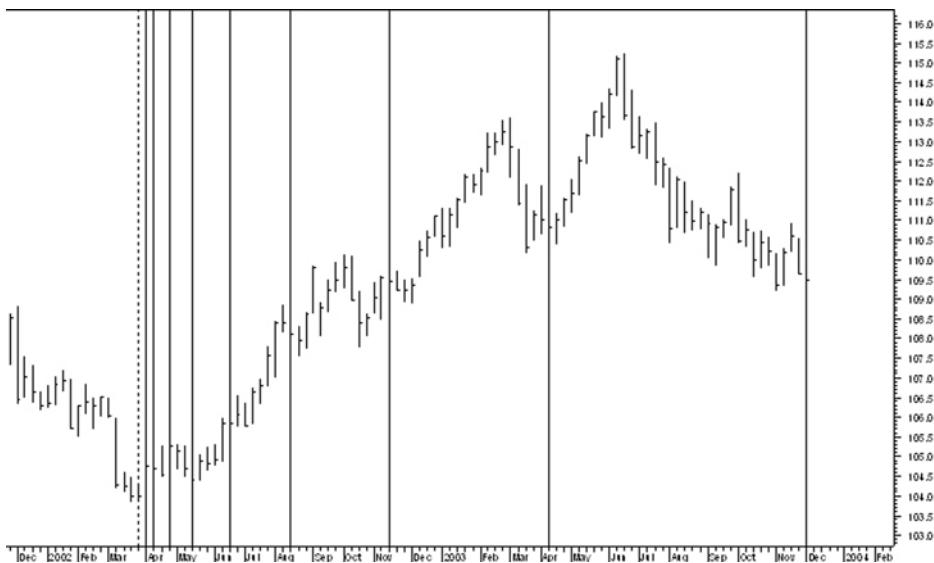
Figure 7.10

day at any other significant day, such as an outside day which is followed by a reversal. In the following charts comparisons are made with weekly Bund–JGB ten-year spreads.

In the first (Figure 7.11), the origin is placed at the 1999 spike high on the weekly chart, which is fairly effective in picking out the initial turning points in the yield spread, especially in the March 2001 and March 2002 areas, but becomes fairly useless beyond there.

However, moving the origin to the 1999 low in the next example (Figure 7.12) gives much better results, especially in the initial stages and at almost all of the subsequent weeks. Notice again the failure to pinpoint highs and lows, but the pattern works well in identifying changes in behaviour such as the reversal in November 2001 at the 89th week period and at 144th period and signals the end of consolidation at the 24th period and is early for the 55th period. I would be fairly happy with this chart as a tool to draw attention to these time zones where I would apply further different methods of analysis to yield action such as moving averages and patterns. It should be noted that yield charts, even weekly ones, suffer in that stochastic processes cannot be safely applied, as most yield data are available in end-of-day format and not in OHLC; therefore even weekly where there is an open (Monday) value a high, low and close (Friday) value does not realistically get around this issue.

Placing the origin in the above examples at a significant high (or low) gives fairly reasonable results on the weekly charts, and is mixed for various reasons in shorter timescales. Significant highs and lows are fairly easy to spot, but of more use is perhaps
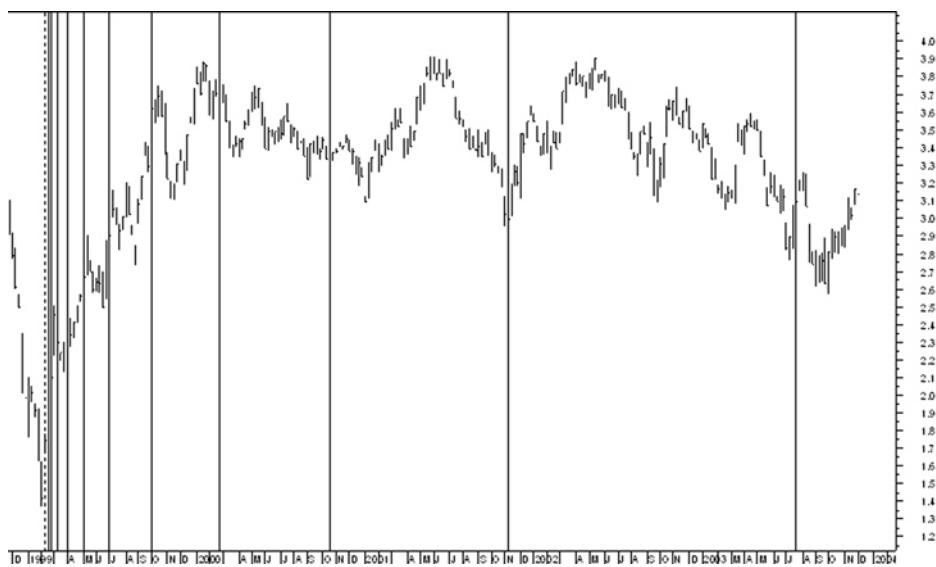
Figure 7.11
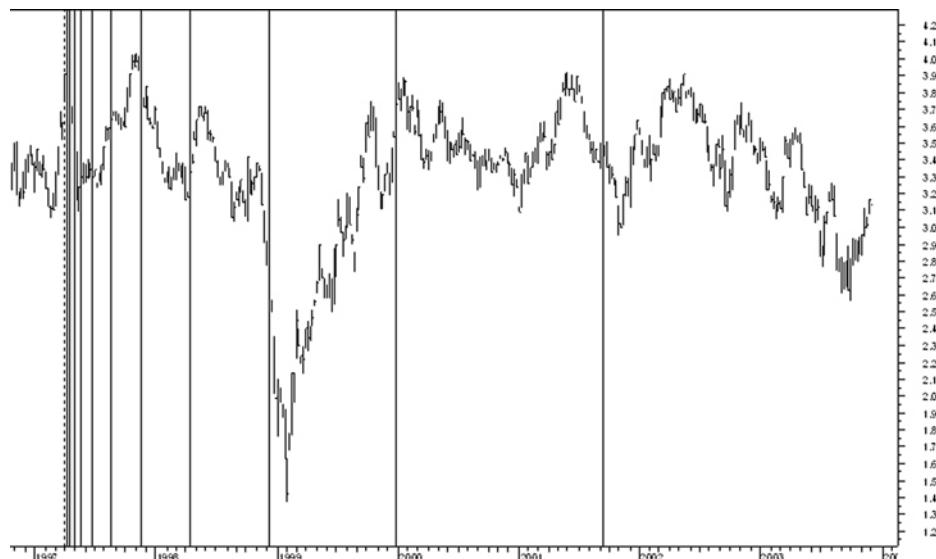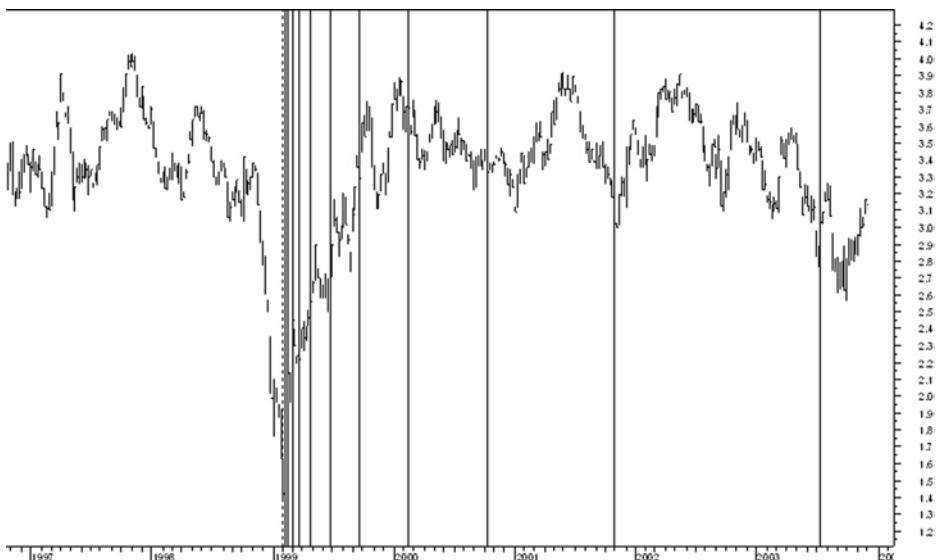
Figure 7.12

Figure 7.13

the application of the timescale pattern to occasions when sentiment changes (see Figure 7.13). This is best seen in the occasions of an outside day (bullish or bearish) which can come anywhere in developing patterns but is especially useful at congestive tops and bottoms and at the end of a period of consolidation.

In this example (Figure 7.14), the bearish outside week is in the congestion at the ten-year Swedish Government bond high back in 1994. Subsequent yield action is fairly well captured by the timescales, with changes in behaviour from trending to consolidative and vice versa, and indeed many turning points are identified, notably in the 1999 low and November 2001 low.

It can be seen from the above examples that application of the Fibonacci timescales is a little 'hit and miss'. Key days/weeks are often unidentified, but behaviour changes are better suited for this analysis tool. In comparison, I feel that there are better results in using Gann days rather than Fibonacci days. These are constructed from the Gann Square (often called the Magic Square) shown in Table 7.1. Here the key days are on the vertical and horizontal points from the origin in the centre and at the 45-degree lines from the origin. This gives the initial days as 1, 2, 3, 4, 5, 6, 7, 8 ,9, 11, 13, 15, 17, 19, 21, 23, 25, 28, 31, 34, 37, 40, 43, 46, 49, 53, 57, 61, 65, 69, 73, 77 and so on. When applying these to the previous chart, the chart in Figure 7.15 is seen. There is little to signify improvements in this application, especially in the first days, but as the cycle extends some key days are identified. In Chapter 9 on Gann, further use of the Gann Square and relevant date function applications are looked at in more detail.
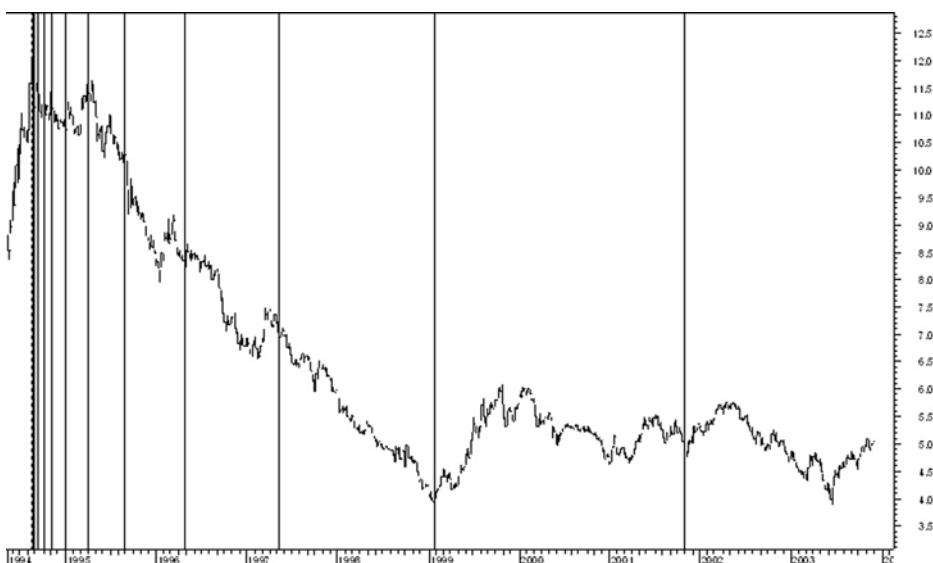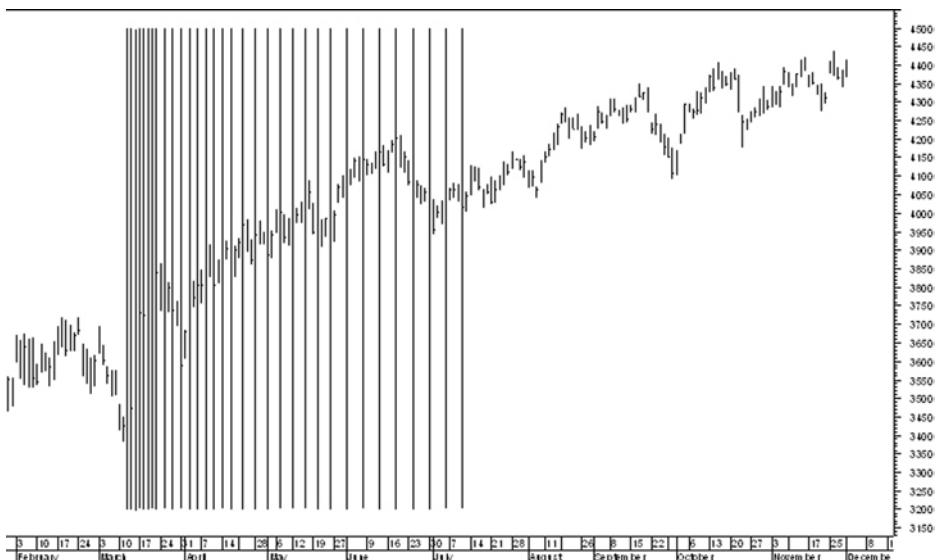
Figure 7.14

However, both of these techniques pale in comparison with the more successful, and better understood, cycle theory. Cycle theory is a corollary of traditional technical analysis: events in the past are repeated into the future. From this cycle analysts look for occasions when similar events, such as significant lows and highs, are generated as the price advances. Sometimes this is fairly easy to spot and counting the days between significant lows and then projecting forward can give excellent results. There is a problem with this oversimplified application; when cycles of different periods intersect on a certain day, the effect of them may not be as predicted. For example, super long-term cycles interacting with a shorter one may not only reduce a significant high or low but may cancel it out. On viewing a chart this could give the interpreter the idea that the cycle is invalid. Most charting packages have a simple 'cycle-finder' programme which identifies cycles within the time series. This usually results in two or more cycles being found. This is a fairly basic outcome.

Table 7.1

17	16	15	14	13
18	5	4	3	12
19	6	1	2	11
20	7	8	9	10
21	22	23	24	25

Figure 7.15

I prefer to use cycle size as a moving average value. Here it is better to use exponential moving averages, since they incorporate all the information previously developed on the chart. Some interesting results can be gained from using these values as moving average parameters.

The following examples show various futures contracts with their internal cycles plotted as moving averages. Firstly, the Bobl with the 102 and 35 day moving averages gives very good support and resistance to the contract in the latter half of 2003, with traditional signals generated from the break of the 35 day moving average in June signalling the slide lower; this is confirmed by a sustained break lower once the 102 day has been taken out (see Figure 7.16). Only minor short-lived penetration of the moving averages has been seen since then, which adds to the confidence that these values are good indicators.

In the case of the Bund with 341, 85 and 37 day moving averages (Figure 7.17), traditional bullish signals are given in late August 2003 with the price crossing of the 85 and 37. Then later in January of 2004 the narrowing of the moving average bands, crossover later and then price penetration signals the start of the next phase of the bullish move and the moving averages remain as support levels from then on until the end of March.

The trending FTSE-100 futures contract has used the 146 and 79 day moving averages as support in the later 2003 period (see Figure 7.18), but here there is little additional evidence except for the crossover of moving averages in July 2003. This zone also acted as the bounce site and ended the fears of a slide developing.

102 and 35 m avs

Figure 7.16

341,85,37 m avs

Figure 7.17

Figure 7.18

Price penetration of the 102 day moving average on the Schatz futures contract in September 2003 triggered a repeat of the uncharacteristically bearish seen in July (Figure 7.19). The next day saw a move through 171 moving average support and from then the 102 and 171 day moving averages have acted as strong resistance with only minor penetration seen when these two lines converged in mid-November.

Murphy in *Technical Analysis of the Futures Markets* attempts to use Fibonacci day counts as moving average values. This is an interesting proposition as it is comparable with the cycle theory mentioned above.

Using the above examples once again, the key periods are identified on the chart of Figure 7.20 by the arrows. Here the parameters are the Fibonacci numbers 2-34 as a moving average of one is simply a line chart and is meaningless in this analysis. Whenever there is a constriction of the moving averages and price penetration the contracts move sharply in the following periods. This is most marked in the case of the three successive narrowings in the June–July period in 2003 on the Bobl future and again following the recovery high in early October. Notice that the moving averages are acting as strong support and resistance throughout the life of the contract.

For the Bund contract the break in the channel top in September 2003 is coincident with penetration of the narrowing moving averages shown in Figure 7.21, where the key periods are identified by the arrows. This encourages the resulting bullish move until piece action breaks the constricted bands in October, which were acting as support, and the bearish move develops. Again in late March the bands constrict tightly, especially the shorter periods, and once this support zone is taken out the contract falls sharply.

Figure 7.19
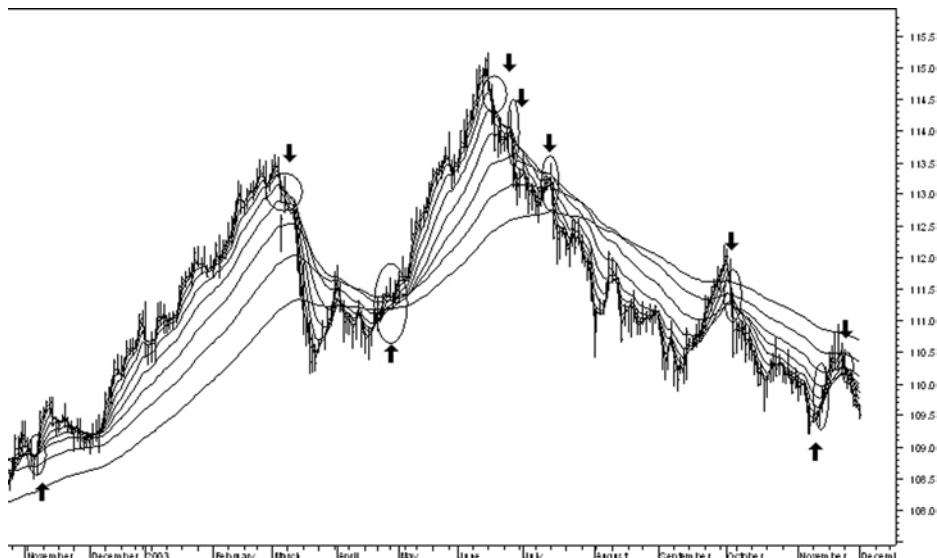
Figure 7.20

Figure 7.21

In the trending FTSE-100 contract the tightening in the moving averages is an excellent signal for sustained moves thereafter, especially in the October 2002 and April 2003 area, whereas the July constriction in 2003 signals the end of the little corrective move from the June high. This pattern is repeated in the case of the Shatz contract chart of Figure 7.22, where the key periods are identified by the arrows.

It can be seen from the previous analysis that Fibonacci timescales can be of little value when applied as a 'pattern' on a chart, but have some value in other kinds of technical analysis, especially when the day count is applied to techniques requiring 'days' as the measure, such as moving averages, and to momentum studies such as stochastics and RSI, but in both these latter uses a significant size of 'day count' has to be used. In my research I prefer to use 13 days for stochastics and RSIs with occasionally 21 days for longer studies.

The following charts in Figures 7.23 and 7.24 show the FTSE-100 futures contract with RSI and stochastic set at 13 periods and in the second example with 21 periods. Notice that there is no confirming sell signal in the 13 day RSI chart. In Figure 7.26 the vertical lines are kept constant from Figure 7.25. The periods here are 21 days and the signals in the stochastic chart are still good. When it comes to the 34 period chart in Figure 7.27, the stochastic still gives the same trigger days but suffers much less from violent swings, which is the case whenever stochastic periods are extended.

In the next three charts for the Schatz (Figures 7.28, 7.29 and 7.30), the same principles and parameters are applied, but in this case there is a strong effect from
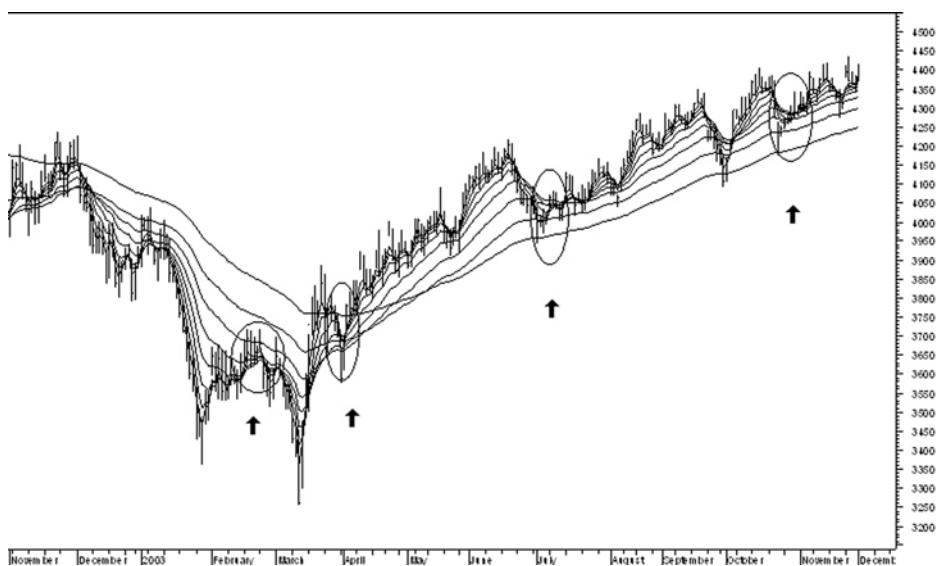
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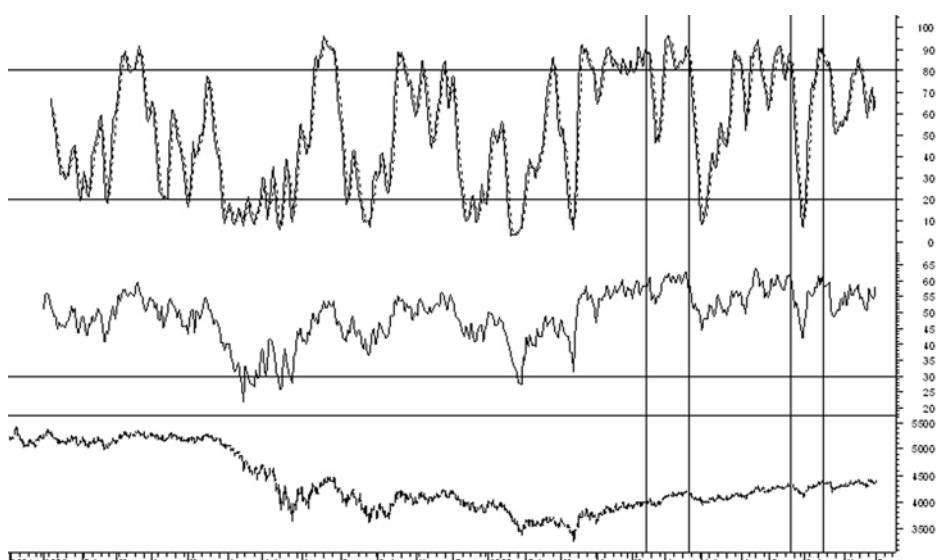
Figure 7.23
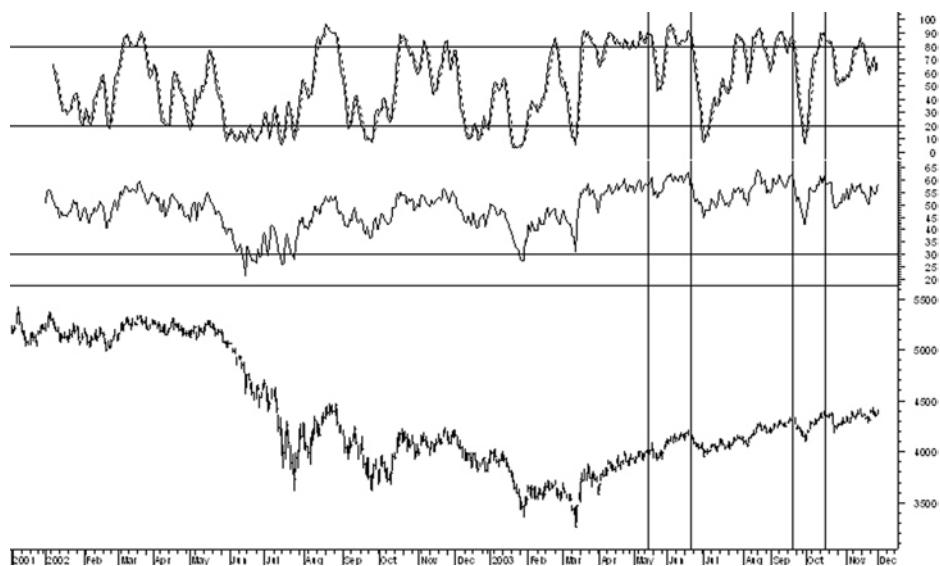
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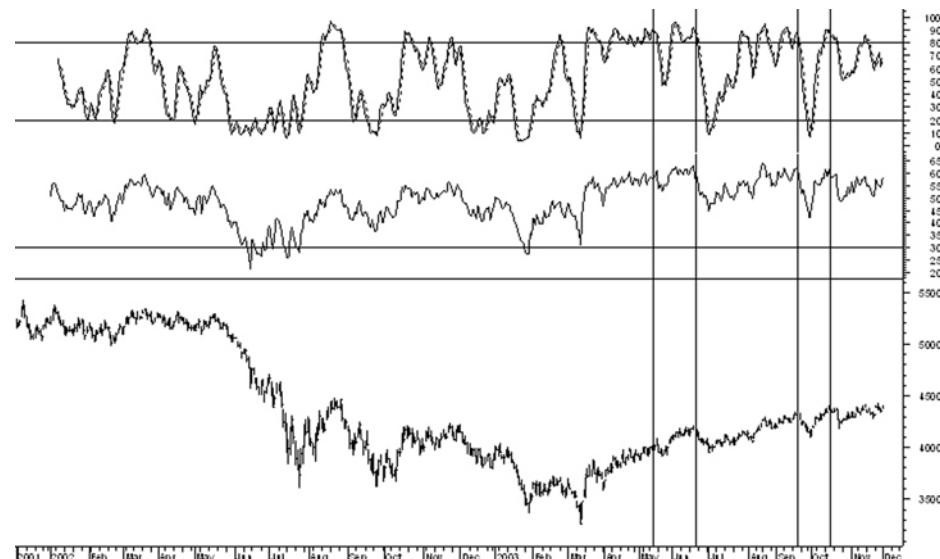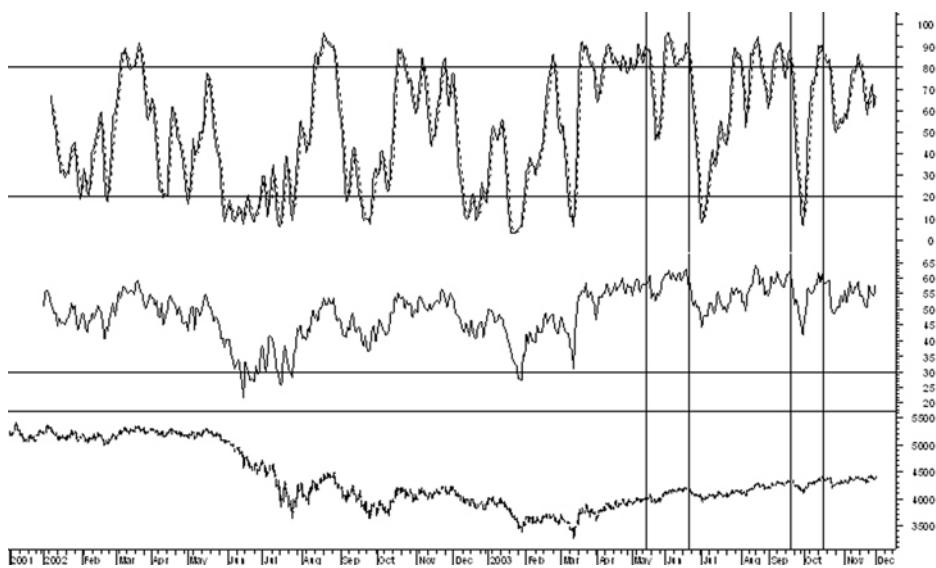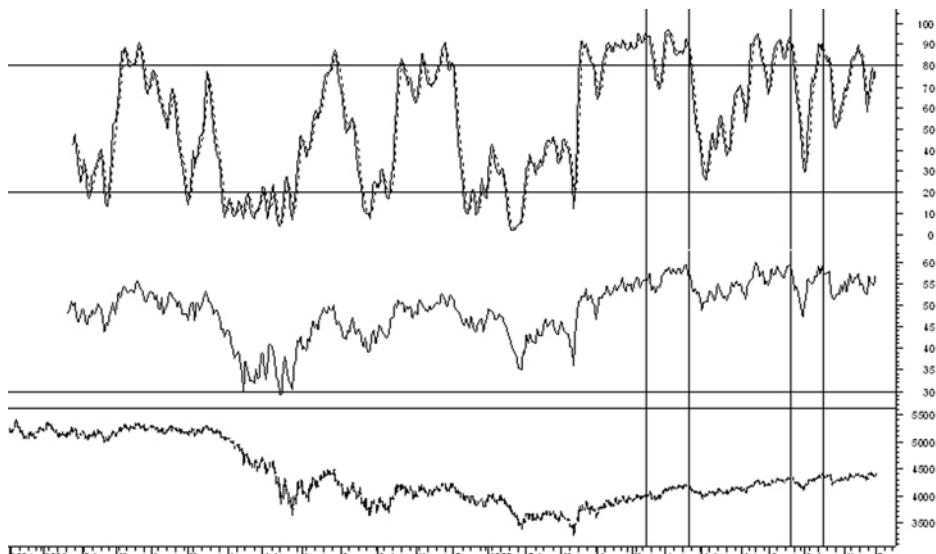
Figure 7.25

Figure 7.26

Figure 7.27
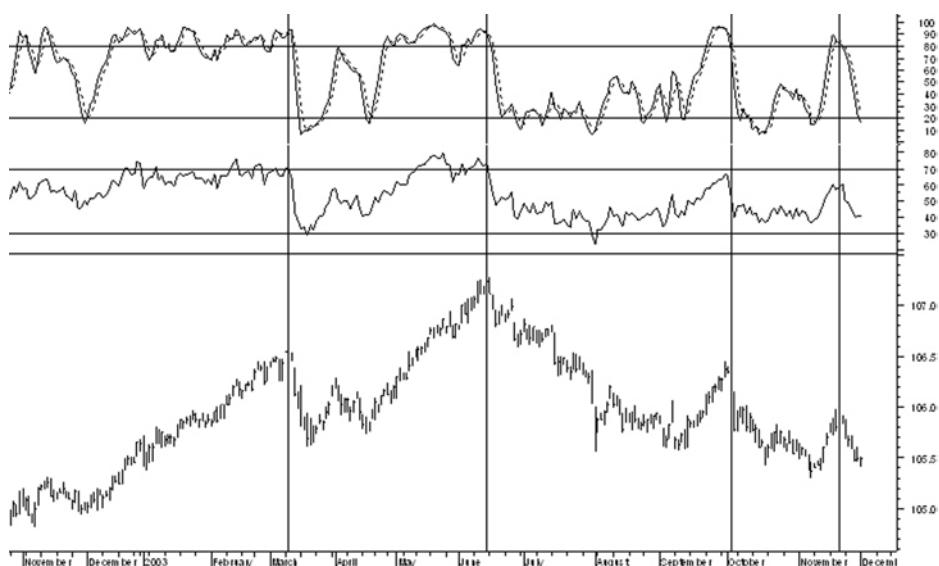
Figure 7.28
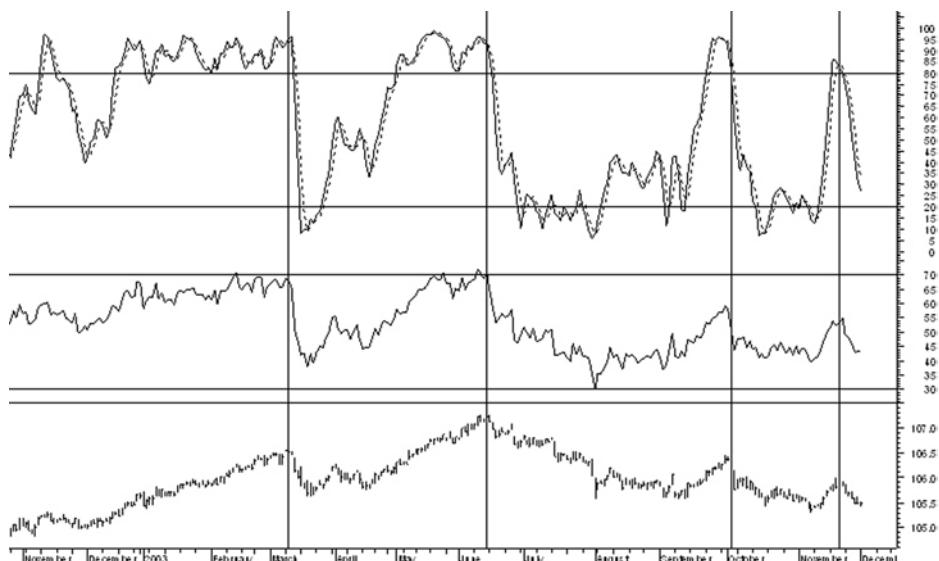
Figure 7.29
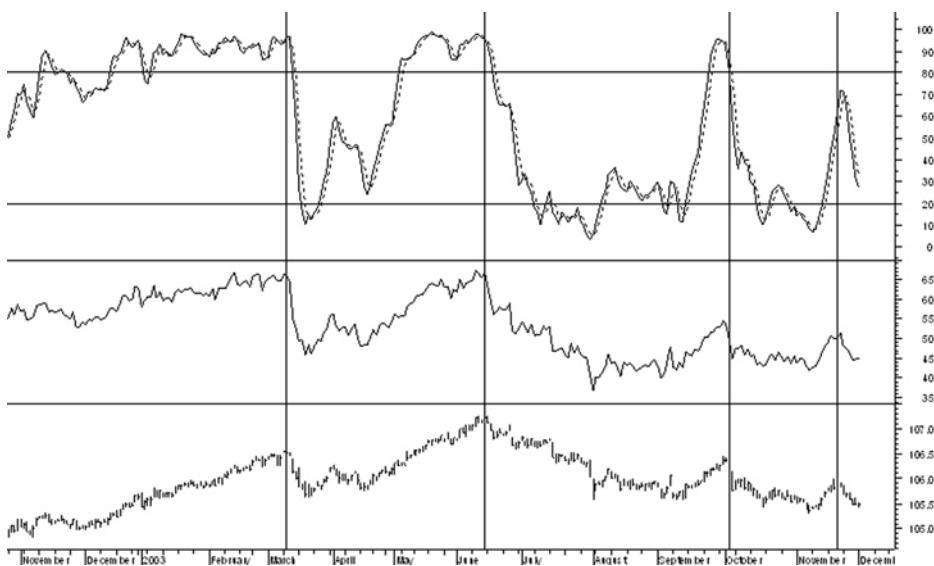
Figure 7.30

the recent corrective move in the contract that causes the final sell signal, which is clear on the 13 and 21 day stochastic charts to slide under the overbought zone and so is not a valid signal. Again there is the problem with the RSIs not being able to trigger sell signals here, which worsens as the time periods increase.

SUMMARY

While not decrying the efficiency of Fibonacci timescales in themselves, from application it seems better to avoid them as there are better methods of identifying key days in the future, such as cycles and indeed Gann theory, in order to forecast interesting days in the future. The timescales themselves do not even begin to suggest that those days will be bullish, bearish or reversal days, only to suggest that these particular days from the origin day are worthy of attention. The whole point of technical analysis is to suggest investment behaviour at the current time or at some price level in the future. Timescales do neither of these things. The Fibonacci days themselves are interesting but not critical in technical analysis. As can be seen from the experiments and examples within this chapter, their constituents, i.e. the number of days, can be more useful when applied to other techniques such as summing periods in moving averages and in the stochastic and RSI indicators. However, analysts may find them useful within other applications, as mentioned above. Experimentation is

one of the skills needed by a technical analyst in the search to find the ideal indicator; pattern and the moving average timeframe are part of the daily task of investment analysis. Application of the timescales as part of another tool should be tried, but from the examples in this chapter it can be seen that not all markets are successful. However, I feel there is better application of the analyst effort and results are better when applying other technical tools.

8
Total Analysis – Pulling All the Skills and Techniques Together

The effect of too much reliance on Fibonacci retracements and how an experienced analyst uses this tool. Keeping it simple for the audience. Should Fibonacci be used alone or in conjunction with other methods of analysis?

In this chapter I shall take the opportunity to go into some detail of what I call 'Total Analysis' and show the steps a technical analyst should take before coming to a firm conclusion about the extent of trend, momentum and where targets should be set. While the thrust of this book is to look at the more creative forms of technical analysis of Fibonacci applications and later Gann analysis, it would be remiss of me to write this 'how to' book without pulling all the skills together. A technical analyst should use all the weapons of discovery and prediction that are in the arsenal. Key success for a technical analyst comes from knowing how patterns and retracements develop. Some take very little time to appear. Some like traditional symmetrical triangles take a long time and as time is of the essence for contemporary technicians, profits can be made and lost in the time some long-growing patterns take to develop properly and according to some textbooks.

In this chapter some of the reasonable short-cuts will be looked at and attention drawn to the care needed before they can be used. There are many excellent books on technical analysis available, but some suffer from using examples where patterns, momentum and indeed retracements are 'perfect'. In my experience as a technical analysis practitioner, and even more so as an examiner in technical analysis, students suffer from not coming across patterns unless they are 'orthodox'. A prime example of this is in the correct identification of a Head and Shoulders formation. This is one of the most powerful reversal signals we have and students often fail to

see a positive or a negative sloping pattern, and in some cases they even force a horizontal neckline on to the pattern which will result in incorrect measurement of the price breakout objective. This is particularly sad as experience shows that orthodox, flat necklines are few and far between in the real world of trading.

The contemporary technical analyst uses as many tools of their trade as possible in order to gather information about how price action is going to develop over various timeframes. This can be a matter of a few hours to a few weeks and each timescale has its own threats. For the analyst looking only a few hours hence, there are few opportunities for major correction, unless there is a shock to the market. The role of the hourly or intraday technical analyst is to 'hold the hands' of the trader and to confirm that the current move will last 'a little longer'. Whether this is a matter of several hours or only few, this supportive role is critical. The intraday technical analyst will use hourly stochastics and moving averages to signal a change in market sentiment and act accordingly. Similar tools are used by analysts looking further ahead, but their goal is slightly different as within the daily and weekly chart moves prices are exposed to greater threats such as economic data releases and political and other economic news threats. Even further out the longer term technical analyst is exposed to changes within instruments under analysis, such as changes to the basket within futures market analysis or stock splits and rights issues in equity markets and, within my lifetime in the Forex market, currencies disappearing. In the current environment of uncertainty, threats of a political nature are often seen as catastrophic. Market shocks such as this are infrequent but nevertheless when they do occur it causes panic and anxiety in the investment world. During the 1980s and 1990s the UK was under constant threat from the Irish Republican Army (IRA) and I remember that bombings and mortar attacks, especially on the residence of the UK Prime Minister, would send a shudder through the UK market. Indeed, worse was to come for the global investment community with the destruction of the World Trade Center in New York. While many were glued to their office television screens, some in the marketplace were taking advantage of this event to push assets; I remember as a Long Gilt future analyst that the hours following the first plane crash were very busy.

This chapter will look at ways of combining technical tools in order to make more rational coherent argument and from that to feel confident in the positions taken. Fibonacci and Gann tools will be used in conjunction with the more 'traditional' ones such as patterns, moving averages and momentum. As mentioned in earlier chapters, for me those tools dealing directly with price, such as pattern and moving averages, are more important than those derived from price, such as momentum indicators. I believe that as the price is the graphical, physical representation of the attrition within the market at any time, a tool that takes attention away from this is removing some of the key information from the action at that time. While

momentum studies are important, letting them stand alone or giving them greater importance than is really necessary is a very bad habit to develop.

In the following sections, various market conditions are looked at in some detail. There are different treatments for trending, bullish/bearish and corrective market conditions and not all technical tools are of the same value in each of these conditions.

TRENDING MARKETS

All markets go through phases of trending and as such are quite boring for the technical analyst, but the trending market is the bedfellow of the technical analyst as it is easier to watch and predict. However, the basic tenet of technical analysis, that a trending market will continue to trend *unless* there is something to stop it, is key here. It is the latter part of that phrase that is key and it is the task of the technical analyst in a trending market to suggest areas of price (or indeed time) where the trend should come to an end.

I prefer to look at trending markets carefully as it is very important not to think that the trend will go on for some time. There is always a time when the trend will come to an end, and at that point quick-witted technical analysts have to be prepared. There are many tools for the technical analyst to use when looking for potential end-trend events such as approaching congestive support or resistance. Trendline or channel or other pattern levels are equally good at this task and although some of these tools are seen as 'simple' they remain very important as predictors of change.

Look at this next example of the FTSE-100 future from LIFFE. The contract has been moving in a channel as constrained by the parallel lines on the daily chart of Figure 8.1 since the end of June 2003 and current pricing shows that the contract is in little danger at this stage of attacking either the top or bottom of the channel. From this chart there seems to be additional resistance coming at the recent congestive highs above 4450 and this has been coupled with a slight flattening in the 15 day exponential moving average and that of the 35 day moving average. These are underpinning the price for now but when compared with the behaviour of the 50 day moving average, which is flattening out, there can be little doubt that the moving average support levels will come under threat.

However, to see an end to this trending market, the analyst will really have to wait for the channel support to come under threat. Ambitious analysts will see the break in shorter period moving averages as sufficient early warning that the reversal is about to start, with initial confirmation coming on a break of the 3200 psychological support level just before the base of the channel comes under attack. Looking at the previous behaviour will give a clue as to how dramatic a reversal could be, as this contract is rather gentle and does not suffer from major swings very often. This

Figure 8.1
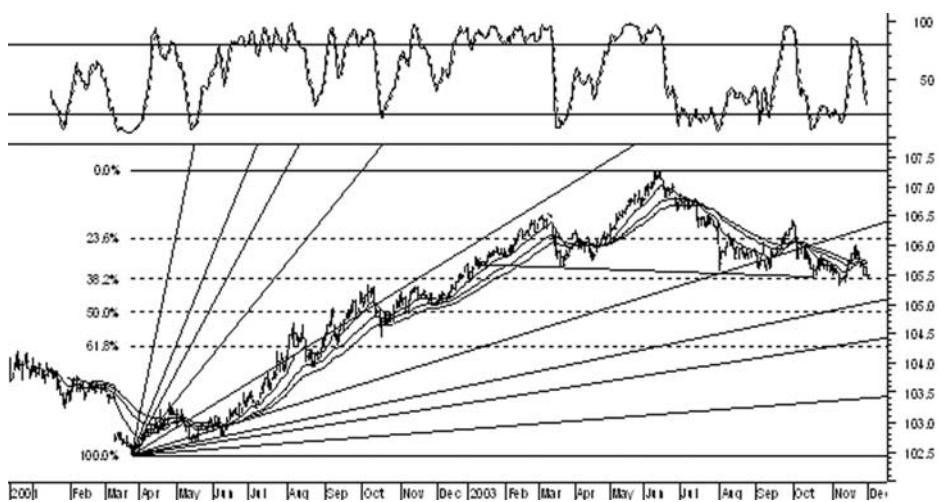
would suggest that the break lower when and if it comes should give enough warn-
ing to entice short positions. Naturally from this chart, risk of the contract not slid-
ing is still prominent, and confirmation of failure to slip will come if the recent
highs, which have not been retested, come under pressure and the contract moves
towards the channel top. Although it is not correct to call a move higher a 'reversal
risk', as the analyst is looking for a bearish position to develop, failure to slide
should be called 'continuation risk'.

Many analysts prefer to have a 'summary sheet' of what is going on (see Table 8.1).
I shall use these throughout this chapter to show that these can keep the analyst,
novice and professional alike focused on charting behaviour.

Table 8.1

Technical tool	Direction	Outlook for tool
Price	/	Struggling higher
Short moving average	–	
Medium moving average	–	
Long moving average	/	Flattening out
Stochastic		
RSI		
Pattern?	Channel	Safe for now
Summary	Could see channel end	

/ = Positive, – = Flat, \ = Negative

Figure 8.2

This summary shows that the FTSE-100 is entering an interesting phase. Although it is not weakening as yet, the various technical tools used here show that the move looks to be coming to an end. A summary sheet like this draws attention to the instrument, which should keep the analyst focused on the contract more often as potential reversal threats grow.

In this next example of the Schatz future (see Figure 8.2 and Table 8.2), the corrective move has already developed and is fairly advanced. Here stochastics, moving averages and Fibonacci retracements and a Gann fanline are used in conjunction to identify the next move, which is not as clear as it looks on first sight.

Table 8.2

Technical tool	Direction	Outlook for tool
Price	\	\
Short moving average	\	\
Medium moving average	\	\
Long moving average	\	\
Stochastic	\	\
RSI	\	\
Pattern?	Channel	Developing
Summary	Needs to take out Fibonacci and trendline support, but is weakening	

/ = Positive, – = Flat, \ = Negative

Since July 2003 the contract has been weak and the attempts at a recovery move have not been successful. There was a time when it looked as if a Head and Shoulders pattern was developing on the chart (late July) but this has failed to move prices lower. Although the contract is still above the extension of the neckline, the pattern is invalid now as I believe that the second shoulder has to be smaller than the first in both amplitude (height above the neckline) and in period (width) of the shoulder. As there have been several attempts since the completion of the Head to see a second shoulder developing (all failing), the pattern is over and invalid. However, I would still keep the neckline extension in full view, as it is now just a plain trendline level. Although there was a test on the neckline and it broke in late October, there looks to be gathering evidence that the next attack on this extension neckline will be successful as both stochastics and moving averages are weakening substantially. Notice that the extension of the neckline is slightly below the 38.2% vertical retracement level, so a break when it comes will be significant as it will take out two key levels. Notice also that the Fibonacci retracement is a critical one; it is taken from the low after rebasing the nominal coupon in the contract and is not simply a rollover low. On a break of the neckline extension and of the 38.2% support level then the contract runs into congestive support trouble from the late September–early December 2003 area. This should be difficult to break initially and further negative pressures will have to develop before that can be taken out. Any moves to the upside are going to be difficult as the congestion of daily moving averages acts as a strong cap to reversal bulls and indeed, although it is a little too early to confirm, the contract may now be moving lower in a channel pattern. Recovery risks are limited at this time given the succession of lower highs visible on the chart and indeed it has been some time since any resistance of significance has come under any threat at all. This should encourage the bearish analysis.

The outlook for the Schatz remains negative for now and the Gann fanline pattern gives an ideal initial target level. This is the 1×3 (price $\times$ time) support level and comes in just above the 50% vertical Fibonacci retracement level at 104.86. Therefore, breaking through the 105.50 zone will give a significant shorting opportunity. The risk is to see the moving average congestion attacked. This is capping, as stated before, and these three moving averages will be ideal money management stop loss levels as they will continue to slide as long as the price move is lower. The Gann fanline is an excellent tool to use here as it is constructed from a 'real' critical low in the price; that low is generated once the specification of the contract has been changed. Also note from this chart how the 1×1 fanline gave excellent support and resistance throughout the April 2002–January 2003 period. Although the contract looks weak, there is still nothing to suggest that the next move lower will be aggressive. This is often a concern for analysts once key levels are taken out, as the asset will see impulsive action developing. The Schatz is not prone to aggressive sudden moves, but that

is not to say that they will not happen. Elements of analysis can combine, and just as wave patterns in physics can see combinations triggering bigger or faster waves developing, this can happen in technical analysis as well. The key in this particular case is to watch what happens once the neckline extension trendline is taken out and the 105.50 support level comes under pressure. This latter level is a psychological one (half price) and the break of this is not only significant for technical trading but also for those who have an antitechnical analysis bias as a break of a half price is seen as significant, even to those who have no technical analysis training or interest.

Before moving on to further total analysis, I would like to introduce to new technical analysts the pattern called 'Andrew's pitchfork'. This is a pattern that came into vogue in the 1990s but not much has been written about it. It is one of my favourite patterns, and although it does not appear often, when it does it is a very good tool. What is needed to construct this pattern is a significant high (or low) followed by a trend and correction and then a return to the primary trend. Look at the chart of the ten-year UK Gilt yield in Figure 8.3 and notice how the pattern is constructed.

The 'pitchfork' is easily constructed. The first step is to draw a trendline joining the low of the initial downmove to the high of the correction. Next, a trendline from the high (in this case at 5.35%) is drawn through the midpoint of the trendline drawn in stage one. This is called the 'median line' (ML) and is extended as shown. Stage three constructs a parallel line to the median line but places the start of it at the low of the initial move. This is called the 'lower median line' (LML) and the second parallel line is placed at the high of the correction, the 'upper median line' (UML).

Figure 8.3
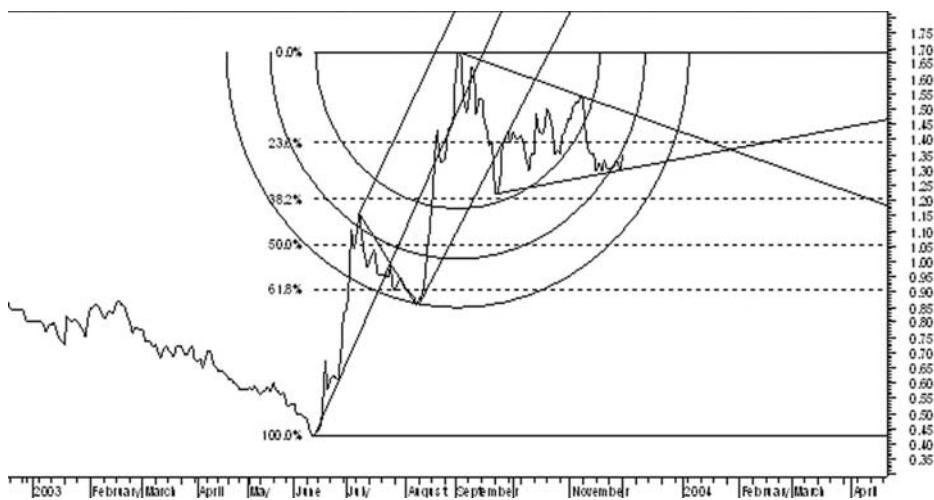
Figure 8.4

This gives the resulting 'fork' lines. Price action may remain within this fork for some time and the lines themselves act as strange support and resistance levels. However, the pattern comes into action when price moves out of the 'fork'. Remembering the parallel lines constructed from the fork pattern, further parallel lines are drawn above and below the upper and lower median lines, at exactly the same distance as the UML and LML were from the ML. These are 'warning lines' and once they come under attack the move is confirmed.

In this example of the yield in the ten-year JGB (see Figure 8.4 and Table 8.3), the 'pitchfork' has been an excellent guide for predicting the next moves as the

Table 8.3

Technical tool	Direction	Outlook for tool
Price	Broadly –	\
Short moving average	–	\
Medium moving average	–	\
Long moving average	/	–
Stochastic		
RSI		
Pattern?	Triangle	\
Summary	In a key trigger zone looking to the downside	
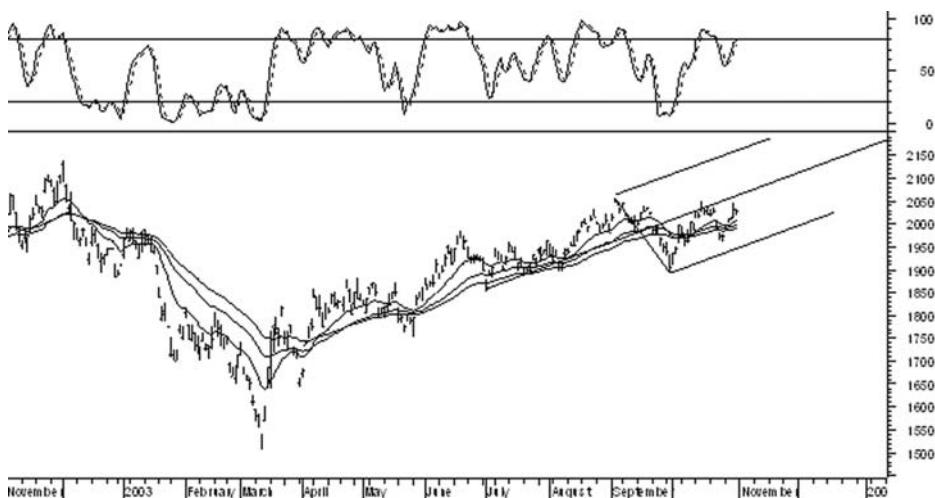
/ = Positive, – = Flat, \ = Negative

median line holds as resistance most of the time and the break in the LML triggers price behaviour and an attack on the warning line. Notice that in this case the corrective attempts from the warning line have not been successful and the pitchfork itself is safe from attack. There are mixed signals from the moving average system and the current yield is trapped within the short and medium moving averages. In addition, the triangle, which has developed on the daily chart, looks to be in danger of coming to an end and the triangle base is under attack. Once this goes then the 38.2% Fibonacci arc is the first objective with the 38.2% vertical Fibonacci retracement seen thereafter. Breaking towards this zone will put an end to any hopes of recovery in the yield and the 50% arc and retracement should come under pressure thereafter. As long as the moving averages do not take a positive turn in the short term then the outlook remains negative for the yield from here. Again the short period moving average is seen as ideal for marking reversal signals, so in the negative move that looks set to start, this is the stop loss level.

Notice also the multiple use of Fibonacci tools in this example. As mentioned in earlier chapters, the Fibonacci arc is ideal for use with other Fibonacci tools, in this case the traditional vertical retracement. Where the vertical and arc lines cross there should be increased protection to the yield move, in this case especially at the 50% values for the arc and vertical. This is a strange chart in that the initial moves from the low are very steep. This is not common in yield analysis and reflects some measure of instability within the yield itself. This is also uncharacteristic volatility and a break to the downside may see the more 'normal' behaviour starting once again.

The summary table shows that the contract is at the beginning of a potential move lower but that some tools are lagging. Aggressive traders would take this current evidence as being enough and would short this position, while those who are a little more cautious would be happy to wait a little longer (and forgo some of the move) in order to be more confident in the next move. There are different kinds of trader, and this is something that a good technical analyst has to remember: not all are willing or indeed able to act on analysis suggesting a change and prefer to wait for confirmation. Confirmation is a difficult thing to gauge in technical analysis. Charles Dow was able to use the Industrial Average and the Railway Average to confirm each other (and thus the move in the market) but currently analysts look for confirmation within the tools analysing each asset. This is not as strange as it sounds. Many assets are inexorably linked to each other and a true comparison across assets is not as easy as it was for Dow. Indeed, in the case of Forex markets, moves in USD–EUR will see similar moves developing on GBP–EUR and GBP–USD and to a lesser degree to EUR–JPY and GBP–JPY. A similar relationship exists between euro futures and across STIR contracts. This is just a fact of economic life.

Here is a slightly less complicated price pattern for the Eurotop index (Figure 8.5 and Table 8.4). Notice that since the time of being able to construct Andrew's

Figure 8.5

pitchfork there has not been much activity and the index remains subdued. However, with daily moving averages starting to firm after a short period of flattening and acting as support, there is little to encourage a slide and the median line should come under pressure again. The longer-term view is that the index is moving in a huge bull channel and this is encouraged by the still broadly positive stochastic chart. However, there is a danger that the index will move into stochastic overbought territory again, but this instrument is notorious for giving false signals, as can be seen in earlier moves into overbought territory. There was a false sell in late August and a false buy in early September of 2003. This has more to do with the general common behaviour of the instrument itself, as it is only just trending. Trending markets

Table 8.4

Technical tool	Direction	Outlook for tool
Price	–	/
Short moving average	/	/
Medium moving average	/	/
Long moving average	/	/
Stochastic	/	/
RSI		
Pattern?	Pitchfork	/
Summary	Well supported and moving slightly higher	

/ = Positive, – = Flat, \ = Negative
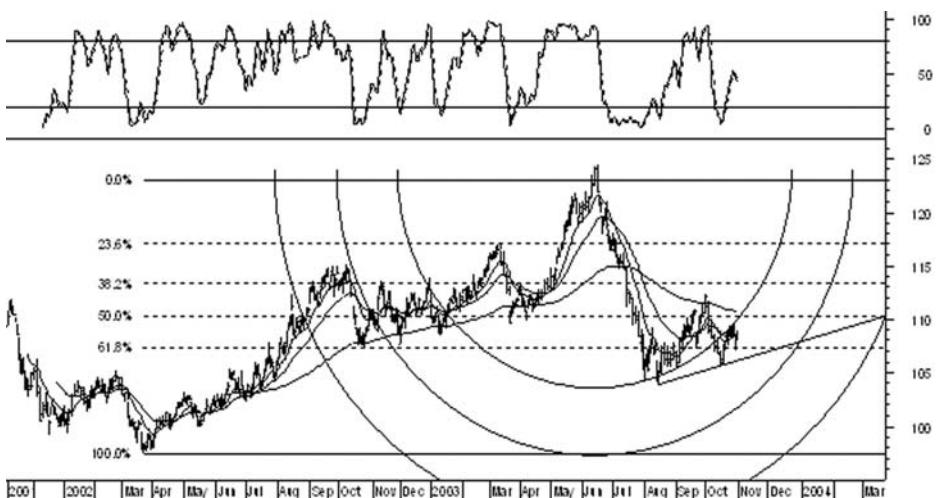
Figure 8.6

often give false signals to stochastics and despite there being frequent dips in value these have in the main been short-lived and the index has recovered well enough to see the longer-term positive move still valid.

Analysis shows that the index is indeed looking strong and should continue to move higher a little longer. There is little danger on the downside as key support levels have gone untested and the index shows little inclination to slide lower.

In this example of the US 30-year Treasury Bond futures contract (see Figure 8.6 and Table 8.5), the current price move is within a very steep triangle pattern. The correction from the high in May has gone significantly far but there still waits to be

Table 8.5

Technical tool	Direction	Outlook for tool
Price	–	\
Short moving average	–	\
Medium moving average	–	\
Long moving average	\	\
Stochastic	\	\
RSI		
Pattern?	Triangle	\
Summary	Breaking key support in Fibonacci arc and vertical. Heading lower	

/ = Positive, – = Flat, \ = Negative

a break in the 61.8% vertical retracement. Until that happens the downmove is not convincing at this stage and there looks to be growing strong support just under 61.8% at the triangle support level and at the 50% arc. Until this zone is taken out convincingly there is a threat that the contract will move sideways a little longer and indeed could be forming a reversal base. That is where strong congestive support builds as a springboard for a recovery move. It is too early as yet to call for potential recovery but as there are mixed signals from the moving average system and a slightly bearish direction on stochastics, it is all 'up for grabs'. Analysts have to be careful here as tentative moves on the upside in October were not significant and did not reach key levels. Until these are taken out the contract is flat and choppy but there is also growing negative sentiment. That is confirmed by the arc breaking successfully and a move through the trendline (triangle) support level. Breaking that will then see the 61.8% arc support under threat. This is going to be a difficult call to make at this stage, as the contract is right in the middle of indecision. Until either of the trigger values is taken out it is best to steer clear of this contract a little longer.

There is no trading shame in not being invested all of the time. A wise money manager keeps out of danger and avoids taking a position in an investment where direction and price objective are not clear. In this case there is a danger that inexperienced traders will take the turn lower in moving averages and momentum as sufficient evidence of the contract weakening, but price action has not confirmed this outlook at this time. It may be a matter of hours or days until this happens but waiting is key in this investment opportunity.

There is nothing worse than taking an 'early' position only to see the stop loss taken out as price fails to develop in the initial direction. This is especially true in this case where price has remained flat and congestive but does not show interest in moving lower at this time. The danger is that the current consolidation continues a little longer and indeed, if consolidation lasts, it creates a 'base' that could indicate that downmoves have come up against very strong and growing support and the only direction left is to move higher.

This example of the FTSE-100 futures contract (see Figure 8.7 and Table 8.6) shows that the 23.6% Fibonacci retracement level has been taken out and that in an effort to break through this in early 2003 the contract has formed a base. This should continue to underpin the developing recovery move. Daily moving averages are mixed, short period ones are positive and healthy but the longer term one is weak, but flattening out. Price action looks set to break through this long-term moving average and this is key. A price penetration of moving average is always a strong signal. This is coupled with the close proximity of the 38.2% retracement level and a break in this should encourage further bullish moves. Although it is still far off, the 1×1 Gann fanline is an ideal longer-term price objective. This is taken from the high in mid-2000. Again this high is not all that significant in the big picture but it
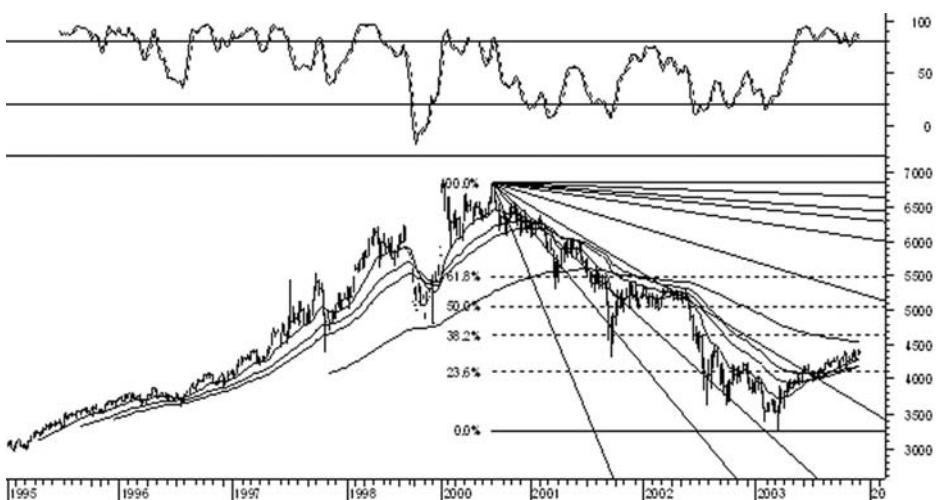
Figure 8.7

is significant when looking on this timescale. The next few weeks are going to be critical, as it will take a sustained break of the moving average to convince bulls that the recovery move is not running out of steam and that there is still some way to go with regard to price improvement.

Taking a look at the chart history, notice how the break of moving averages back in early 2002 signalled a major sell-off. The moving averages converged almost to the same value and when the price penetrated this key support level the contract slipped to major levels. This is another example of the critical nature of moving average behaviour: when they congest a break will trigger a major move. In the current

Table 8.6

Technical tool	Direction	Outlook for tool
Price	/	/
Short moving average	/	/
Medium moving average	/	/
Long moving average	\	–
Stochastic		
RSI		
Pattern?	Moving higher	/
Summary	Bounce from Fibonacci low and Gann 1×1 is attracting	

/ = Positive, – = Flat, \ = Negative
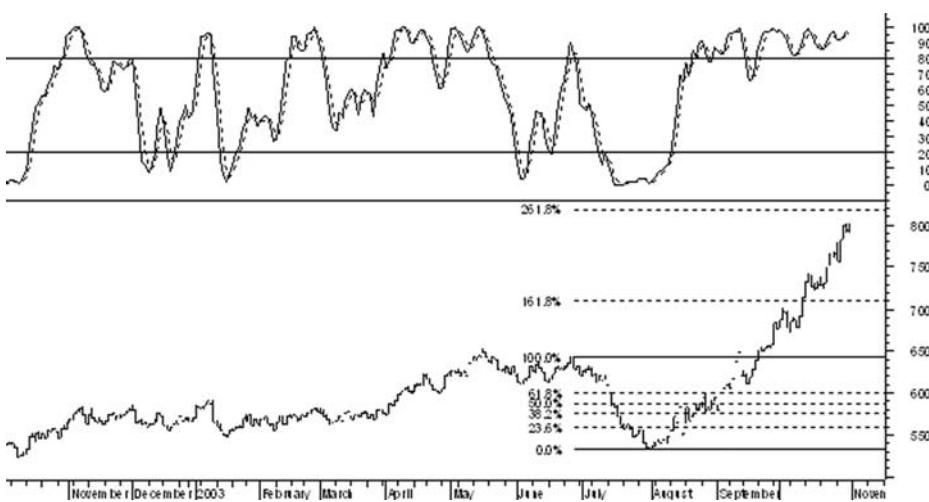
Figure 8.8

environment it looks as if the moving average system will offer very strong support, but the price move is not out of danger. Although the contract is bullish in the short term, for the longer-term view key resistance levels will have to break first and there is a long way to go before those are reached.

This next chart in Figure 8.8 together with Table 8.7 shows how useless stochastics can be. It is in the algebra of the indicator that in cases where there are extended periods of highs (or lows) that the stochastic is of little use. This is because in broad terms the current price is high relative to the 21 previous session highs (in broad terms). Notice that for continuous soybeans the rally since late July 2003 has been

Table 8.7

Technical tool	Direction	Outlook for tool
Price	/	/
Short moving average		
Medium moving average		
Long moving average		
Stochastic	–	–
RSI	–	–
Pattern?	Channel	Up
Summary	Approaching Fibonacci extension	

/ = Positive, – = Flat, \ = Negative

very strong, with only a small pause for congestion in late September ahead of the 161.8% Fibonacci extension level. This, and the little congestion from the middle of October, will act as strong support if and when the price falls, but for now there is no suggestion that the rally is running out of steam and the 261.8% extension level is attractive as the initial objective from here. This rally is very uncharacteristic of the contract, when comparing with pre-June 2003 behaviour. There has obviously been some change in market perception about soybeans that is driving this move.

It is not very often that an analyst comes across uncharacteristic behaviour such as that displayed in the above example. Looking back, even calling for a break to the 161.8% Fibonacci extension level looked ambitious in mid-September, but since that level was taken out the contract remained strongly bullish. This should see the 261.8% level taken out before even considering a corrective move.

There has been a break in the pattern on continuous corn to the upside and although the contract is running up against strong congestive resistance from May 2003, this is not going to be difficult to break (see Figure 8.9 and Table 8.8). The top of the pattern at the breakout level is a flag, but this pattern has 'failed' as the price has dipped since then through one-third of the height, which has effectively negated the pattern. However, the breakout is significant and the contract should continue to firm. Daily stochastics have shot higher into overbought and are not turning yet, so this adds to the bullish evidence; as for moving averages, the short, medium and long period moving averages are firming significantly. This should encourage the extension to develop. As for target levels, the May 2003 high looks attractive initially.

Current price action is slightly negative but this should be short-lived, as the 'flag' of the old failed bull flag pattern should underpin. The contract remains strong and this should see the congestion from May attacked. If that is taken out, and momentum and moving averages suggest that it will, then the congestion from August to October 2002 is seen to be in danger. The contract should run up against difficulty there, as back in that time bulls had to struggle to push the price higher. Support looks safe from attack but a good stop loss should be at the top of the broken triangle or indeed at the short period moving average, which is just about to break through the top of that pattern. However, even at this stage, if there was a corrective move it should be limited. Real reversal is only signalled on a break in the triangle support. For now, although it is too early to call, a 'W' shape is developing which is good news as far as the May high, but from there the contract would start to look overextended. There is some life left in this move but I would be happier to see some consolidation before the next bullish move, which would act as a strong base.

Corrective moves are developing on the next chart for continuous wheat (Figure 8.10 and Table 8.9). The Gann fanline pattern has been an excellent indicator of price targets
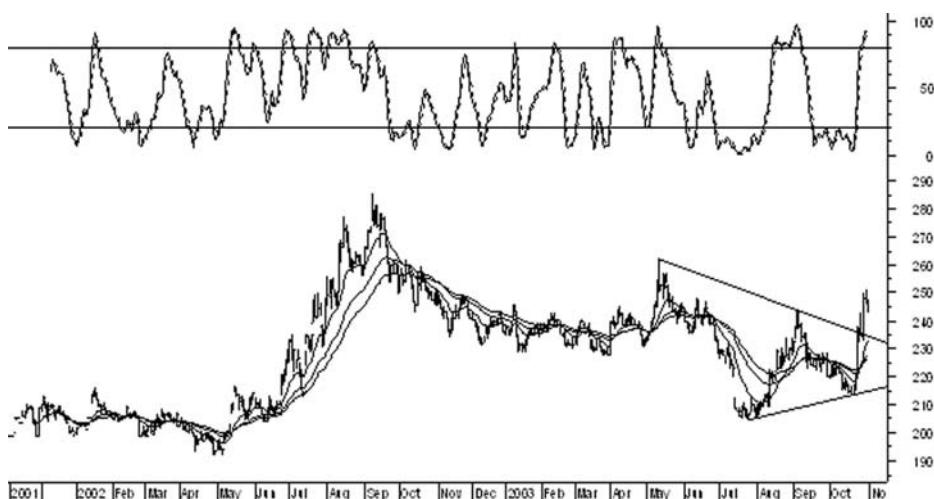
Figure 8.9

Table 8.8

Technical tool	Direction	Outlook for tool
Price	\	/
Short moving average	/	/
Medium moving average	/	/
Long moving average	/	/
Stochastic	/	/
RSI	/	/
Pattern?	Triangle breakout	Higher
Summary	Key resistance is under pressure	

/ = Positive, – = Flat, \ = Negative

since May 2002 but prices are starting to get too far from the origin to give maximum effect. However, since the May 2003 low the contract has been broadly bullish, with some severe corrective moves but no real damage to the underlying bullish trend. Although it is not cause for alarm yet, the crossover on daily stochastics and attack on the 'overbought' line at 80% should keep the analyst focused on the price action. The struggle to break the 1 × 2 Gann fanline over the last week of the chart data has seen a bull flag developing on the daily chart, but there is growing evidence that the contract is running out of steam.
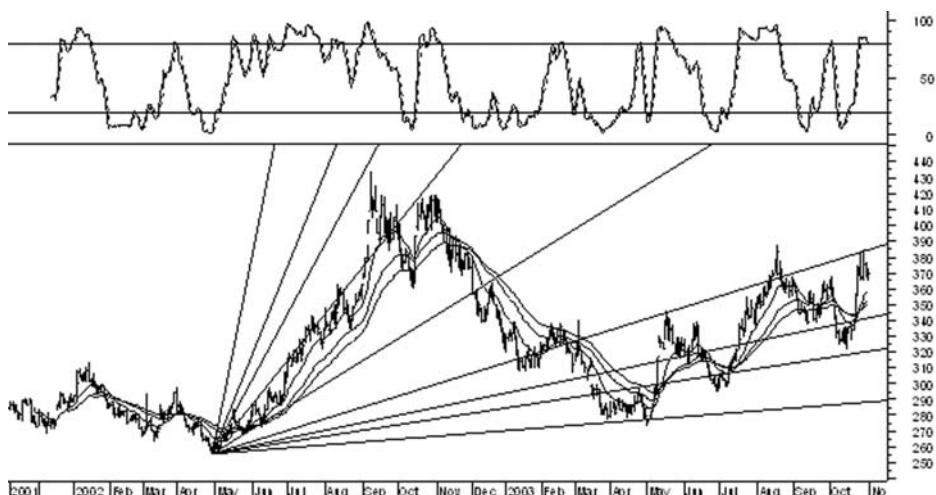
Figure 8.10

The price is in a difficult position here. As long as the moving average system underpins then the contract should keep a broadly bullish outlook, but there is mounting evidence that the contract is starting to look limited on the upside. Key for bulls is to see a break in the Gann resistance level, but that has proved difficult time and time again. At best analysts would be looking for a repeat pattern of the May–June 2003 period but in the very short term there is growing attraction on the downside. If the contract breaks the congestion from September and then attacks the flattening moving average support levels then this marks the end of the potential rally and the 1×3 Gann support level will attract. This is currently just above 340

Table 8.9

Technical tool	Direction	Outlook for tool
Price	\	–
Short moving average	/	–
Medium moving average	/	–
Long moving average	/	–
Stochastic	\	\
RSI	\	\
Pattern?	Bull flag?	Could fail
Summary	Gann resistance has to break to see bull flag develop further	

/ = Positive, – = Flat, \ = Negative

dollars. However, bullish analysts can see a light at the end of the tunnel as recent consolidation has not seen lows attacking key support levels; as long as these are safe from harm then the current flag pattern remains bullish. There was a small flag pattern in October after the break of the 1×3 fanline to the upside and although prices have reached the measuring objective and stalled, there has not been a corrective move. Bulls could now measure the size of the lag from the 320 low in October and have this as a bullish target at 412. This is not too far distant from the attempts earlier in mid-October, but risk has to be placed tight, and I would suggest that the long-term moving average level be the stop loss trigger.

The previous examples show how technical tools can reinforce a technical argument and should be used to encourage an outlook. There is obviously a hierarchy of precedence. Elsewhere in this book the suggested order combinations of technical analysis was suggested – pattern first, then moving averages, then momentum and finally Gann and/or Fibonacci. While it is not important to have all of these tools used on a chart, or indeed appropriate, some have to be used. In the examples in Figures 8.4 and 8.6 using vertical and arc Fibonacci analysis together has been suggested and this is an excellent way of joining two similar tools. In the chapter on arc problems (Chapter 6) these problems were looked at in some detail as arcs often gave inconclusive results if used alone. This is overcome by using arcs in conjunction with other tools; indeed, when used with traditional vertical retracement levels the arcs offer additional evidence without additional effort.

It has to be remembered that not all tools are useful all of the time. Indeed, the latent personality of each instrument may change over time and thus make previously good tools redundant. This has been noted especially in juvenile contracts, such as the early LIFFE and MATIF BTP contract and other 'new' contracts. As time progresses tools that worked even in the not-too-distant past may not work in the current climate as there may have been a change to the instrument of some significant degree. A good analyst should not assume that tried and trusted methods used in the past and which the analyst feels very confident using will be appropriate in current conditions. It has been mentioned several times in early chapters that markets are dynamic and thus subject to change, whether from external economic or political or other environmental influences or from within, such as a change in the asset itself. Thankfully I have not come across too many analysts in my years as a technical analyst who use the same techniques over and over with scant regard to changing market conditions. There must be something else in the skill set of the technical analyst that ensures that techniques are tested, tested and tested again before becoming sure of their effectiveness.

9
Gann, The Misunderstood Analysis

Square of price and time, use of squares, angles and hexagons. Notes from personal experience of using the above. The difficulty with Gann: all those esoteric books and theories. Who has read 'The Tunnel Thru the Air' and put it all into practice? How analysts fall back on work done by authors following Gann and how programmers love to add Gann angles to charting packages. Timing in Gann. The forgotten analysis: lifetime history and how this ties in to issues raised in previous chapters about lack of history within some charting packages.

In this chapter we shall address the often-misunderstood Gann analysis and associated criticisms and look at some useful applications of the more approachable parts of his theories, while avoiding the more difficult and esoteric theories that have little daily application. That is not to say that these theories are without merit; on the contrary, there are many Gann aficionados who make their fortunes quietly following his theories regarding planetary influence, but for this book the more mundane and easy to apply techniques are sufficient.

W.D. Gann was born in a poor area of Lufkin, Texas, on 6 June 1878, marrying and moving to New York in his early twenties to begin his career on Wall Street. It was there that he started his own 'tip sheet' called 'The Supply and Demand Newsletter' in 1919, which was very successful, but it was not until 1924 with the publication of his first book, *Truth of the Stock Tape*, that his place in analysis history was assured. Fans of old black and white American movies will have seen a tickertape from time to time. This was a telegraphic machine, which fed stock (equity) prices to off-trading floor offices, businesses, newspapers and clubs. It is

the waste of these machines that was thrown from office windows in the traditional 'tickertape parades' for heroes in New York. Indeed, I remember attending a function in a Mayfair gentlemen's club in London in the 1980s to see an old out-of-use tickertape under a glass dome. It still looked impressive then. This was the newswire of its time and was a critical piece of machinery for successful trading. Gann is known as an expert reader of the tape and his skills and insight into reading this information was famous even in his day. This is probably one of the most approachable books from Gann but remains frequently out of print. Then followed a succession of more difficult books, beginning with *The Tunnel Thru the Air* in 1927, *How to Make Profits Trading on the Commodities Market* in 1942 and finally *Forty-Five Years in Wall Street* in 1949. Gann died in June 1955.

Many stories, some apocryphal, about Gann exist and were notorious even in his day. Depending on which source you read, he was a charlatan charting $5000 (during the Great Depression) to attendees of his investment courses who died in poverty or he was the most successful trader ever to have lived and made over $1 million each year from his trading account.

Contemporary technical analysts usually avoid the minutiae of his life and focus on his techniques. It has to be remembered that for every ten technical analysts who have read one or more of his books, only one has indeed done so. It took me two years to work through *How to Make Profits Trading on the Commodities Market* and that is not the most difficult of his writings. Students of investment history should read that book, which contains an analysis of some of the more obscure markets of that time, especially the silk market, which is interesting in itself.

Application of Gann analysis, in any form, is shrouded in almost total mystery. There are often too many techniques relying on planetary motion and conjunction, the application of which can leave a technical analyst open to ridicule, but imbedded in these techniques are skills and advice that the seasoned technical analyst cannot ignore. While there are many analysis tools that construct charts heavily dependent on planetary conjunctions and precession (the movement of the near planets throughout the year as seen from either the sun, heliocentric, or the earth, geocentric) and undoubtedly quiet successful traders who use these applications, for day-to-day analysis and application and short-term trading, these are of little use. Students of what has come to be called 'investment astrology' will have to look elsewhere for help.

The books written by Gann are notoriously difficult to interpret and can be seen as an ideal marketing tool for his courses, but some of his techniques slipped out into general use and this chapter will look at them in some detail. I should point out at this time that I am a great fan of Gann analysis and have used it across various asset classes over the years to some success.

Before we look at the more approachable theory of the square of price and time, we should look at the Gann swing charting method first. This is a fairly simple

application and gives some excellent entry and exit points. It is a pity that this form of charting is even less popular than Point and Figure charting, as it is simple to use in the extreme.

BASIC CONSTRUCTION OF A GANN SWING CHART
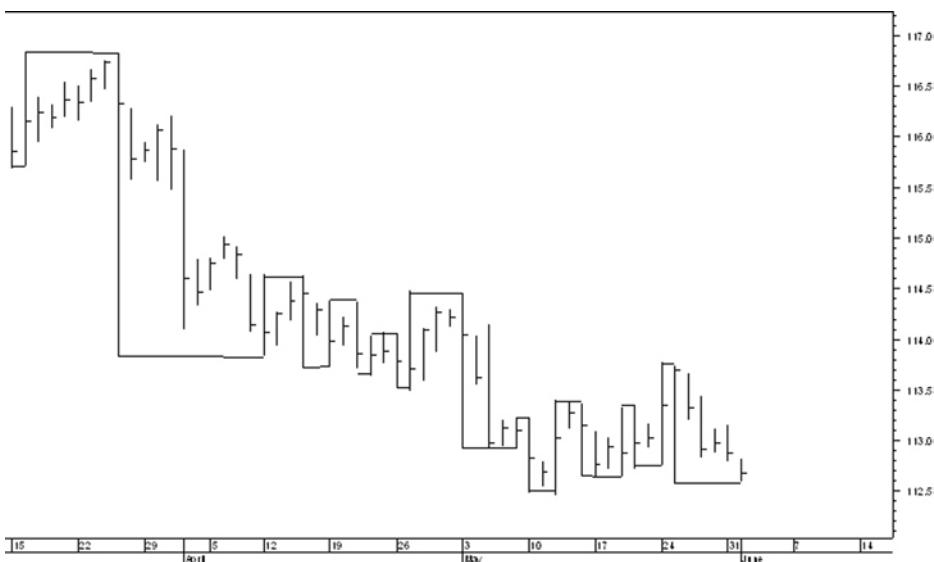
The trend indicator line (TIL) is based simply on the relationship between daily highs and lows. If in day 2 the high is higher than that in day 1, then the line moves up to that level, but if the low is lower in day 2 then the line moves down to there. Inside days, where current high and low are inside the previous day's range, are generally ignored, except for occasions when a reversal follows from an inside day. In the case of outside days, where the current high and low are outside the range of the previous day, draw the TIL to whichever of the high or low occurred first during the session and then reverse it to the other extreme.

ENTRY AND EXIT STRATEGY

A strong buy signal is given once a swing chart base has been formed and the price action breaks out of the range. The reverse is true of a sell signal, where congestive highs in the swing chart are needed first and then the range breakout happens.

As in all good techniques, stop loss levels are critical. These are set at the last change of direction in TIL level, as indicated in the swing chart of Figure 9.1. This is really all the charting that is necessary to give an insight into the market direction.

The most serious and approachable of Gann's theories involves the relationship between price and time. Gann believed that this relationship was key to market action and that price and time were inexorably linked. Here the strongest relationship is between the change in price by one unit and that of time by one unit, usually a day. A straight line can be drawn on a daily chart showing this relationship, which appears as a 45° line on a chart. Subordinate relationships are also important, such as one of price to two of time, two of price to one of time and so on. Drawing these on a daily bar-chart gives the 'fan' pattern as seen later in Figure 9.7. This is a fairly 'fixed' system to apply to a chart and there is very little room for manoeuvre from these fixed amounts, but the analyst has to remember that Gann was talking about prices within a 360 day year and indeed within 32nds of a dollar, making the prices themselves link clearly with the degrees of a circle. Although there is nothing wrong with using decimal pricing in Gann analysis, the analyst has to ensure and remember that all possible prices that can be generated within the market are not equally important and that quarters, eights and so on are much more important in Gann analysis than decimals. There

Figure 9.1

is a feeling in technical and non-technical quarters that Gann analysis somehow lags the market itself. I am not convinced with these arguments and believe that they fail to address these two key points regarding the importance of individual prices and to the application of the American 360 day interest year. Fixed income analysts are constantly aware of various conventions regarding the accrual of interest and the differences that incorrect application of a local convention can have to an investment outcome. In Europe, actual/actual day counts are preferred and analysts have to be aware of comparisons with markets not quoting yields in this format. Gann is not a difficult concept to use in practical analysis; it is only difficult when the more abstract and obscure points become part of the equation, especially when confronted with Gann's belief in the influence of planets on market action. It cannot be denied that seasonal effects, especially within the agricultural markets, have a huge influence on prices and expectations, but it is more difficult to suggest that seasonal effects will have an influence on financial markets on the whole, especially fixed income. However, careful application of the tools of Gann analysis does give excellent results, with some caveats of course. I have argued elsewhere in this book that financial markets, especially the price traded, is the result of natural action between the forces of buying and selling within the market itself, and as a result of the fear/greed pressures on the group driving the price action. There is no more apt process of analysis that takes these into account than Gann analysis. New students of technical analysis tend to avoid this subject in its entirety and stick to more simple and explainable techniques, but I cannot

impress on new adherents to technical analysis that Gann is not difficult. It takes a little time to get around the processes and drawbacks but through trial and application the user can gain some significant insight into market action and indeed future price level expectations.

From an earlier discussion the importance of price history was outlined. If the relationship between historic or lifetime highs and lows was important in Fibonacci analysis, it is many more times important in Gann analysis. Gann believed there was a 'balance' within price action that is a natural 'symmetry' of the price move over time. I believe this to be true as often, when there is an overextension move within the price, forces develop soon after to counter this sudden move, which could see the resulting corrective move overshooting previous price action before returning to the original price behaviour. This is seen most often after a market shock is experienced. With this in mind, the user should be aware that there is no more 'artistic' form of technical analysis than Gann, despite the rules appearing fairly rigid at first. The balance of price action is critical to correct use and interpretation of price moves, and more importantly within price potential. Chart displays of price action have a 'feel' to them that an experienced analyst may be able to spot, sometimes overextended, sometimes sluggish, but the analyst can 'sense' that the asset is struggling to break out of some price action and move on. Whether this is move on to be more positive or negative needs some other technical tools for confirmation, but the original 'feeling' of the price behaviour is key. This cannot be taught; it is a latent skill that experienced analysts acquire after years of looking at charts. While experience of getting it right will encourage in the short term, this will also act as a building block for occasions when the practical, mechanical methods of technical analysis are of little use.

Continued study and practice of Gann does make the application of the rules clearer. As Gann was fairly rigid in sticking to relationships between lifetime highs and lows because there was that market knowledge available in his day, contemporary technical analysts have to be a little less rigid in using Gann, but that is not to say that important highs and lows can be disregarded. On the contrary, despite there being an abundance of price information today, the historic high or low may be significantly away from current market parameters either in time or in value. Some equity markets have a very long history, but for an analyst in 2005 there is little point in looking at a price value for 1973 for example. Contemporary technical analysts have to be content with significant highs or lows in mature markets such as equities, Forex and commodities, but should adhere to the historic high and low whenever the opportunity arises, such as in futures contract analysis.

Most charting packages can construct the pattern of fanlines in Gann analysis fairly well, but before the analyst takes any conclusion from the chart pattern, careful study of the parameters that are used within the construction of the fan pattern is needed.

Some charting patterns will 'fit' a fanline pattern that appears 'correct' to the eye but is indeed suffering from similar problems that were encountered with Fibonacci arcs – the screen will distort. There has to be encouragement to alter the parameters manually.

GANN RETRACEMENTS

As in previous chapters about Fibonacci retracements, there is a corresponding vertical application of Gann retracements. These are simply percentages and can be grouped into two sets. The first of these is Gann eighths, where each horizontal retracement is one-eighth of the whole move. Naturally 4/8ths or 50% of the move is critical here. The second set is the thirds (120°, 240° and 360° of a circle) corresponding to 33%, 66% and 100% retracements of the vertical move. I have found this latter set not as important as the first. Many charting packages do not allow for a quick fix application the way that Fibonacci vertical retracements can be applied and the technician has to get a calculator out to work out the retracements. However, as all packages allow for manual drawing of horizontal lines, fixing these to the correct retracement values is not onerous.

Figure 9.2 shows the retracement charts of sugar. In the first one I have drawn retracements from the significant high at 259.9 to the low at 173.0. As in Fibonacci retracements, these lines cannot be constructed until after the low has been made
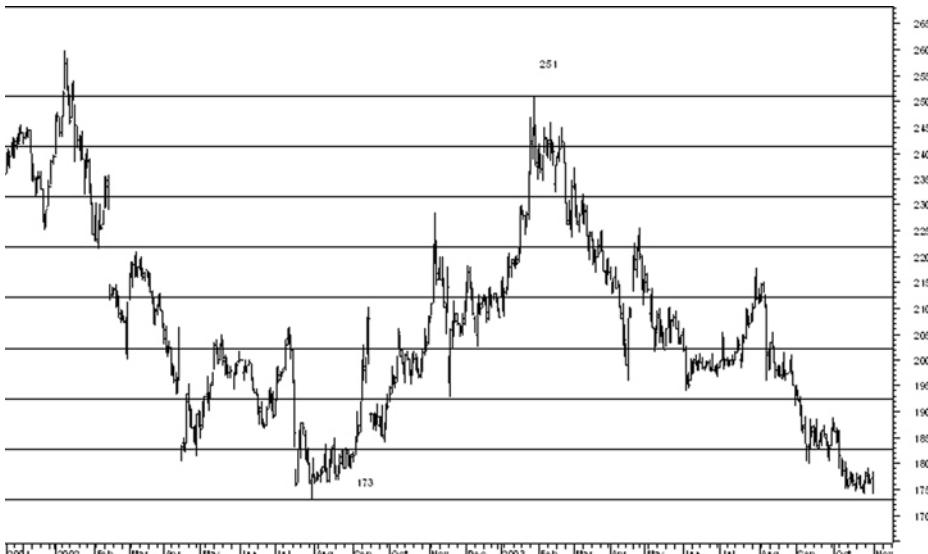
Figure 9.2

Figure 9.3

and a reversal started; otherwise the analyst may be confronted with the false dawn of a short, brief and ultimately failing reversal trend. Notice the struggle to break through the 1/8th retracement of the downmove at 183.86, which again later in September 2002 acted as very strong support. As in Fibonacci vertical retracements, there is no time involved in these horizontal retracements so we can be fairly confident in them not running out of usefulness as they are based on the relationship between the high and the low. In this chart they work very well.

In this second chart (Figure 9.3) I have applied Gann vertical retracements to the bounce from 173 to the 251 high in January of 2003 to see whether there is much difference in using this system where one of the extremes is not a significant high or low. In this case the retracement levels work fairly well. This may be a function of the relationship between the 251 high and the very close 7/8ths retracement of the previous 259.9/173.0 downmove at 249.04.

As these retracements are based on the relationship between highs and lows of some significance, there is little to be gained by having extension levels applied, as this would be useless. A new high or low will change the relative relationship between the other extreme of the price history, so the internal retracement lines would have to be redrawn. I do not like redrawing Gann lines once a new extreme price has been met. At that stage it is time for a rethink of what the chart is doing at that time, as breaking a significant level is much more critical in Gann than in any other process technical analysts use.

Figure 9.4

Applying Gann retracements to cocoa from the 985 low in 2001 and the high at 2420 in February 2003, the pattern is much the same with consolidation within the 2/8ths and 3/8ths retracement levels at only modest attempts to break out before the major collapse in late May of 2003 (see Figure 9.4). This then saw a very quick and uncharacteristic move towards the 4/8ths support (50%) level, which had previously acted as congestive support in July and August and December of 2002. Once again the Gann significance of this level is purely incidental back in that period. For the last few months the contract has attempted a move higher but failed miserably, with resulting penetration under 5/8ths once again and in the latter move is bouncing, but not convincingly, from the 6/8ths support level. This should be short-lived as the contract looks to be setting off on an attack on the 6/8ths support level; once that goes then only the minor 7/8ths is left to defend. Not only that, but with all the congestive trading in the 4/8–5/8ths area now acting as a strong resistance cap, upside moves are difficult.

A similar chart description for the Bobl contract continuation chart is shown in Figure 9.5 as the 4/8ths support level comes under pressure. However, there is not as much resistance as in the case of cocoa and moderate bounces are seen to develop as the congestion under 4/8ths from the August–December 2002 period will be very difficult to cross successfully.

In the next chart of weekly silver (Figure 9.6) the Gann resistance levels are proving very good target levels in this choppy market. Notice that since the decline to 402.60 the metal has struggled to move higher and it is only after consolidation that

Figure 9.5
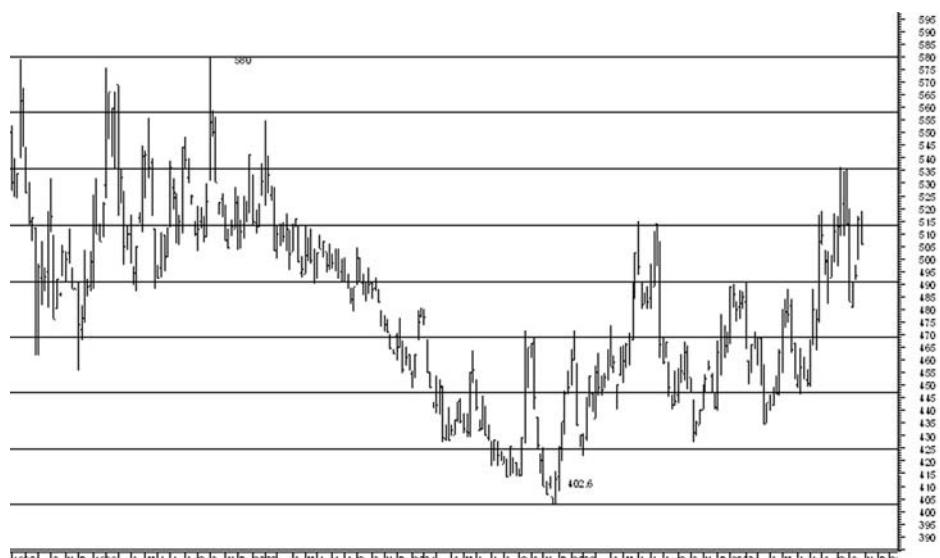
Figure 9.6

bounces have been successful. This now acts as very strong support as the recovery move is underway and the 4/8–2/8ths area underpins.

The above examples use Gann where no element of price is added into the equation. The errors I believe that are introduced in Fibonacci fanlines and arcs are also added into the Gann fanlines (which are discussed next), but this is in addition to the errors added in due to the omission of weekend data in many of the charts used today. The error comes from the assumption that the year is divided into 360 days, as mentioned previously, whereas in reality the actual trading year is much shorter than that.

However, I do find it better to get extension levels from using the Gann fanline rather than the vertical retracements despite the introduction of weekend errors, as long as the time elapsed from the origin is not too great.

GANN THIRDS

These retracements correspond to the 120°, 240° and 360° of a circle (and hence days of a Gann interest year) and are slightly less important in Gann analysis for me than the eighths mentioned above. Notice that the 1/3rd and 2/3rds markers are very close to the 38.2% and 61.8% retracement levels from traditional Fibonacci retracements discussed elsewhere. I would prefer to use the Fibonacci values before using the Gann thirds in my analysis.

GANN FANLINES

As with Fibonacci fanlines and arcs, a price move away from one line should see the next one attracting, with a break in that seeing the next one under attack on a subsequent move. A bounce from near each fanline would then see a recovery towards the one above. In the real world, this is not always the case and some of the reasons for this are suggested in the section on 'drawbacks'. Once the pattern is placed on the chart from a significant or historic high or low, the price prediction action is seen.

Gann fanlines are generally drawn from historic lows or highs. This is key as drawing a fanline from an intermediate low or high is dangerous and in my opinion completely wrong. Gann analysis relies on excellent quality data and lots of it before it can be of any use. The lack of history in many charting packages, especially those linked directly to a price feed, cannot provide this. When I was first looking at Gann in the 1980s my very experienced manager asked me the question: 'What is the high for Cable (the slang term for the US$/GB£ exchange rate)?' I thought about this and could not think of a time when it was significant and had a guess that it must have

been during either the Great Depression or during either of the World Wars of the 20th century and guessed at four dollars to the pound. Little did I know that I was way off the mark in both time and value, as this exchange rate has a very long history that can be considered valid, given that the rate was constantly moving after PLUTO (pipe line under the ocean) and not fixed for some lengthy periods, as was the case in many other exchange rates. The value was twelve dollars to the pound sterling, and occurred during the American Civil War. This was an ideal lesson for me to learn early on as it reminded me that trading had existed long before computerisation! Again, looking at long-term equity charts where the historic lifetime low is not displayed can give spectacularly wrong results, as can be seen in some examples below. Gann fanlines can be applied across all markets, but in particular to those with short lives and therefore history, such as financial futures and options, with some caveats.

Given that historic prices are so important, it is with trepidation that an analyst applies Gann techniques. Here is an example of what a barchart and Gann fanline looks like (Figure 9.7). The analysis itself is fairly mundane.

The one good thing about Gann fanlines is that there is no delay in being able to use them. As soon as a significant high or low has been traded then the fanline can be applied. Here the November 2001 low is taken as the origin of the pattern and from there the analysis is taken. Notice that the first few days show the price keeping well within the fanline pattern and once the break comes in late November then the move to the next fanline is seen. All that can be said after the break of a fanline is
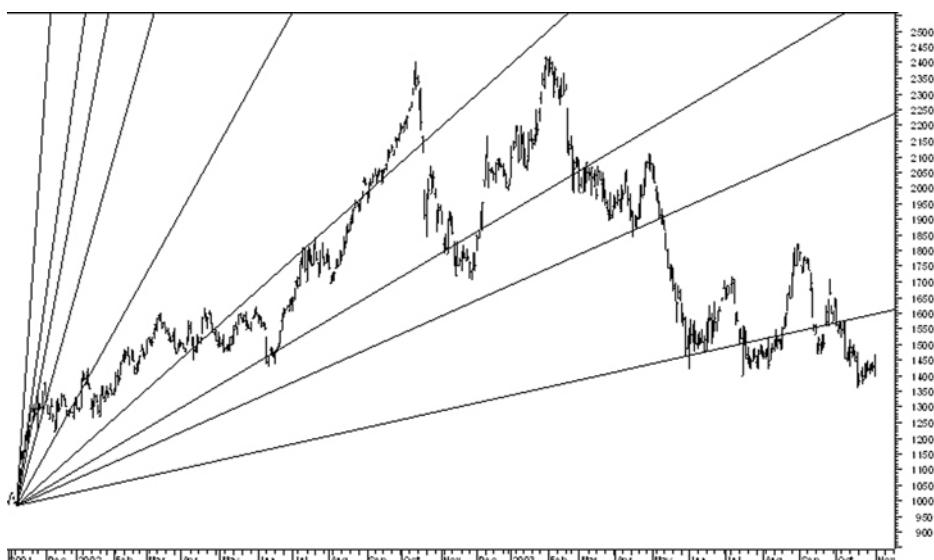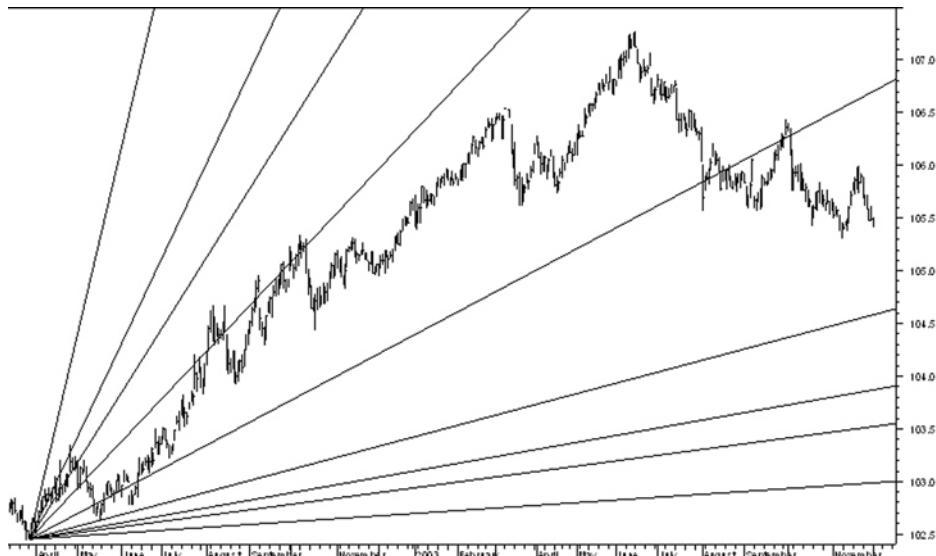
Figure 9.7

that price should move to the next one; there is no indication of whether it will meet the fanline above or below the breaking price. What is also evident is that once the fanline attracts then it will hold the price in a range about that fanline for some time, as can be seen in the April–May 2002 period and again in the May–July 2003 period. What is critical to note about this chart is the attempt to return to the 1 × 1 line from November 2002. The price struggled to move higher and indeed formed a congestion that would act as a base, but as the contract fails to break 1 × 1 at the high in late December 2002 the slide is inevitable. When it comes it is strong and leaves only a little pause about the 1 × 2 line before sliding to the 1 × 3 line and lower. Again this pattern is repeated in late March of 2002 with failed upticks triggering a sharp move lower towards key Gann fanline support.

In this example of the Gann fanline in operation I have used the Schatz future contract (continuation basis) to show some of the effects that time has on the Gann pattern usefulness (see Figure 9.8). Notice that again the initial period from the origin in late March 2002 offers some good trading target levels, but it is only once the defence of 1 × 2 has happened in May and June of 2002 that the pattern comes into its own. This sees trading attempting to keep above the 1 × 1 and to attack the 2 × 1 resistance fanlines, where 2 × 1 holds much of the trading range throughout the summer months. There is no attempt to break higher from the 2 × 1 line in any meaningfully way and the contract remains subdued. In October the slide signals not

Figure 9.8
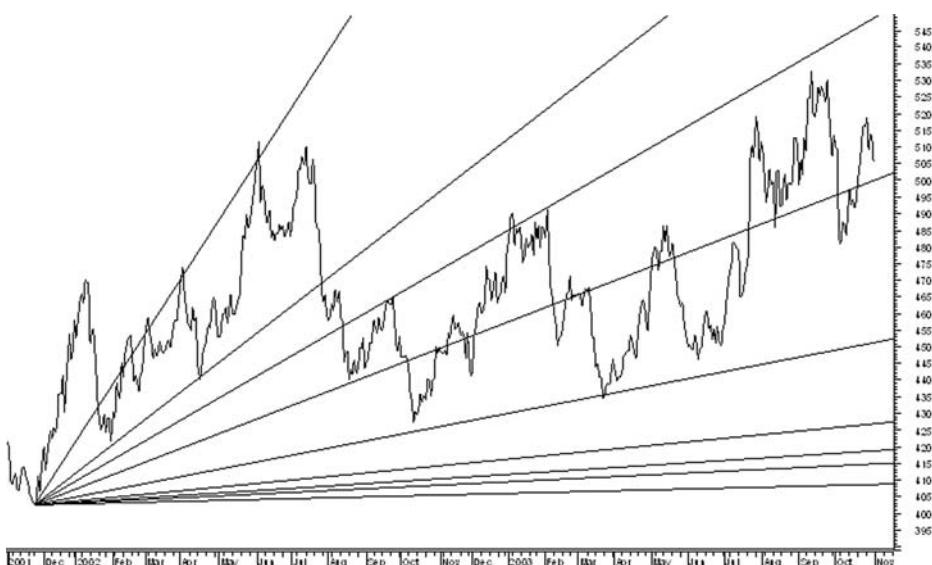
Figure 9.9

only the end of relative consolidation but the usefulness of the pattern as the fan itself has opened up too much to be of use. This is an artistic decision from me not to use it any longer but I feel that the steepness of the fanline pattern and the time elapsed from the origin is in this case too great.

However, in the chart of Figure 9.9 the fanline pattern lasts much longer. This is the continuous silver chart seen above in the first section in Figure 9.6. Notice that the fanline is much shallower in this case. This is a function of the scale. The fanline works throughout 2002 and 2003 very well and offers target levels, support and resistance as necessary.

In this next example of orange juice the fanline pattern is applied not to a major high or low but to a local high (see Figure 9.10). The pattern works very well throughout September to December 2002 but starts to lose usefulness thereafter. This is an example of the danger of applying Gann analysis from an intermediate level and not from a critical high or low. Although there seems to be some connection in this chart between the fanline and the price, I would feel uncomfortable in applying this analysis at this juncture.

In these final two fanline examples of the Bobl futures and sugar, the usefulness of two fanlines is looked at. In the first instance of the Bobl futures (Figure 9.11) the low in March 2002 was indeed significant as it marked a change to the underlying quality of the Bobl futures as some of the basket had dropped out. See later for basket discussions. From the March low the contract can be considered as brand new, so the high and
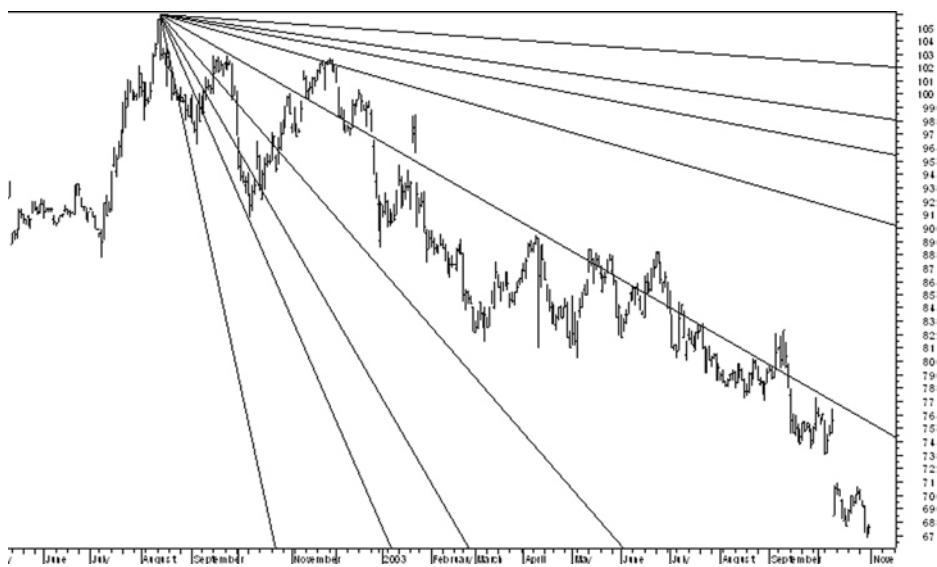
Figure 9.10
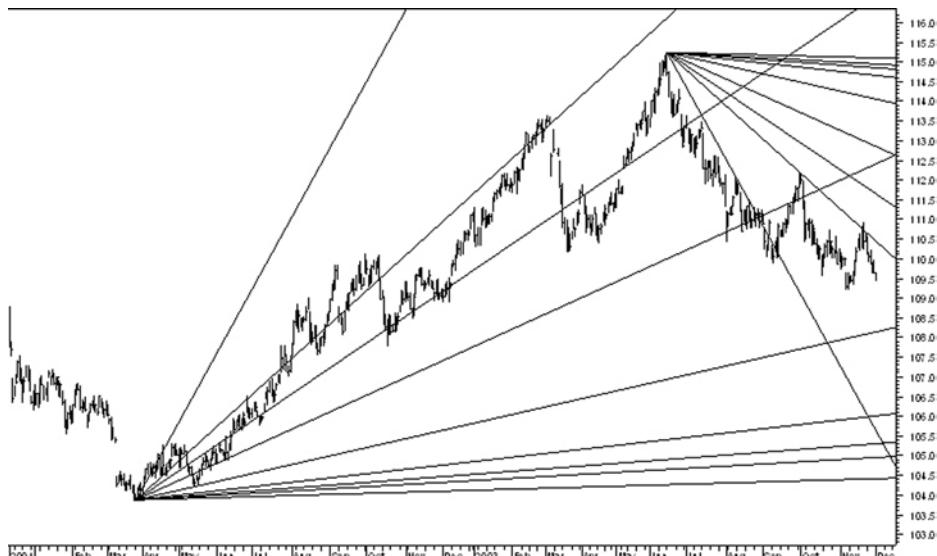
Figure 9.11

low on display are indeed lifetime high and low in this analysis. Of course the high in late May 2003 is nowhere near the high of the contract across all time, but in this case I have chosen to look at a contract as if it were created after the rollover and expiry of the March 2002 futures contract. This allows us to see the interdependence of the positive and negative fanline patterns. Notice that the positive one from the low is fairly dull but comes into play once the fanline from the high is created. Conjunctions of fanlines are easily seen, with special reference given to the attempt to bounce through the congestion in July 2003 and to keep flat in early August 2003. Pressure has been exerted from the two fanlines in place, which is in comparison to the relatively short time from breaking the 1×1 positive fanline in the September 2003 rally, which runs out of steam under the 3×1 negative fanline resistance later that week.

In the case of sugar (Figure 9.12), the fanline has been totally useless from the high in January 2002, but once it interacts with the fanline from the July 2002 low it gives very good results. Notice that not only the coincident points but also the areas between then, especially up to December 2002, are excellent forecasting zones. There are significant bounces seen from the October 2002 conjunction congestion and then again from the early December area, and significant moves lower in February of 2003. Overall the positive fanline from the July low looks to be working better than the negative from January 2002 and is still effective in suggesting support and resistance levels right out until October 2003.
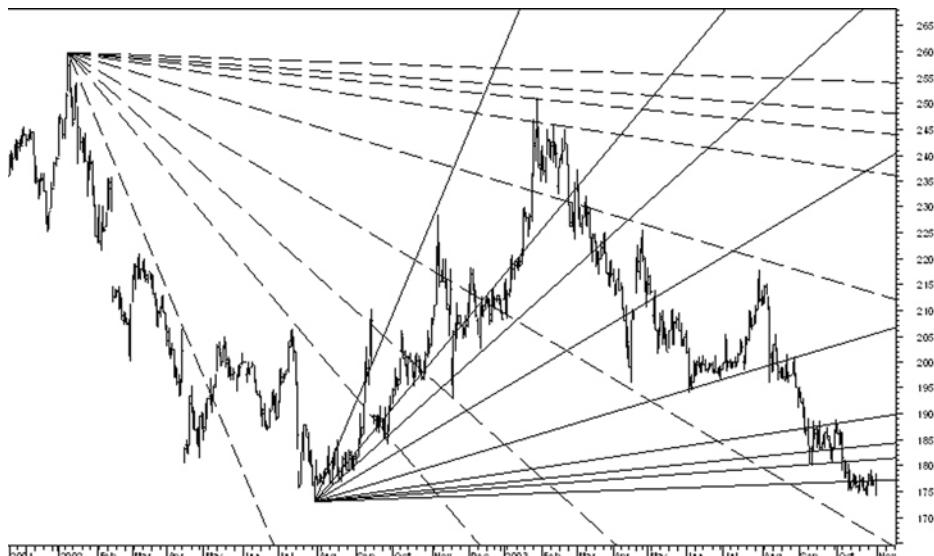
Figure 9.12

DRAWBACKS

As mentioned above, the key drawback to Gann analysis is the access to the significant high or low, whether this is at the historic or lifetime level. However, in the case of single delivery month futures contracts this is removed and Gann analysis is ideal for these, but it has to be remembered that in the case of some contracts, decent history is not generated for what is known as back month contracts. These are the contracts that are not to be the first to be delivered. An example of this is the Long Gilt future at LIFFE, which tends only to have closing values for the back months as all the trading takes place in the next contract to be delivered and only once that has matured will the trading move into the next contract. For readers unfamiliar with the sequence, most futures contracts are traded in a March, June, September and December cycle, which are given the single letter codes H, M, U and Z. Other futures contracts, especially STIR and some commodity futures, will have contracts traded for months out of this cycle depending on various factors, such as harvest time in the case of agriculturals. Although there has been a move away from pit trading in futures contracts in recent years, some contracts are still traded in raked pits on an exchange floor. The most actively traded contract is usually the next one to mature and hence is said to be 'on the top step' to allow maximum viewing by other traders in the pit. However, if there is no easy access to the lifetime high or low then the analyst can make a general assumption that the high and low of the data are good enough. This will result in not making the critical long-term and spectacular calls that Gann was able to do, especially with his famous bullish call on corn! For contemporary analysts, this restriction is good enough for the timescales under discussion.

The second and equally important drawback is the introduction of weekend and holiday errors in Gann analysis. This is not at all important in swing charts and vertical retracement applications of Gann theory but is absolutely critical in Gann fans. There is no way around this and it is simply by experience and a lot of trial and error that the analyst learns just how long a Gann fan pattern remains valid. This cannot be taught and each market and each instrument is going to be difficult. I tend to use Gann for assets I am very familiar with, but less so on ones I have not looked at before or for some time. Just how long the fanline is of use cannot be gauged, but once it is applied to a chart then there are some clues:

1.   If the price action is very steep shortly after the creation of the origin of the fan at a high or low then the pattern will be valid a little longer. I believe that this stems from market perception of the importance of the price at the origin level. If not, then usefulness will be short-lived.
2.   If the analyst has to tweak the pattern to make the scale differ slightly from the 1×1 traditional values then the pattern will not last long. This is especially critical when applied to indices.

3.   The market generally tends to trend for periods. Gann is particularly valu-
      able in markets displaying price or yield volatility.
4.   There are a significant number of holidays due very near to the origin, espe-
      cially over the late December–early January period in the West and equally
      important in Golden Week in Japan. This introduces too many weekend and
      holiday problems into the pattern too soon and can offset the pattern com-
      pletely. I would prefer to wait to see what the start of the next period is going
      to be like before applying Gann in the pre-holiday trading days.

CIRCLES, SQUARES AND HEXAGONS

Gann traded in an environment where there were several coincidences of price with
degrees in a circle (see Figure 9.13). Look at the divisions of a circle in Figure 9.14.
In earlier chapters the 'old' method of pricing in 32nds was discussed at some
length. Building on this fact, travelling around the circle to 45° traverses 1/8th of the
circle, translating into 1/8th of a dollar (or pound or other currency), with 90° being
1/4 of the dollar with intermediate key angles at 60° being 1/6th of a dollar and so
on. I like to call this the circle of price, and unsurprisingly this has a corresponding
relationship with the circle of time as follows. Gann was lucky as the US calculated
interest in a 360 day year, and geometricians can see right away that this is conven-
ient to analysis using the circle. The 45° line here corresponds to 45 days, 90° to the
quarter year, 180° to half a year and so on.

   Gann tied these two interesting circular relationships together and we have to sus-
pend some belief and do the same. This gives rise to the first problems in Gann
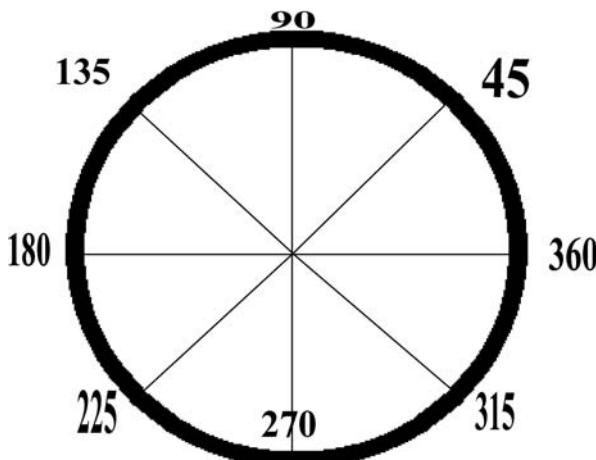
Figure 9.13
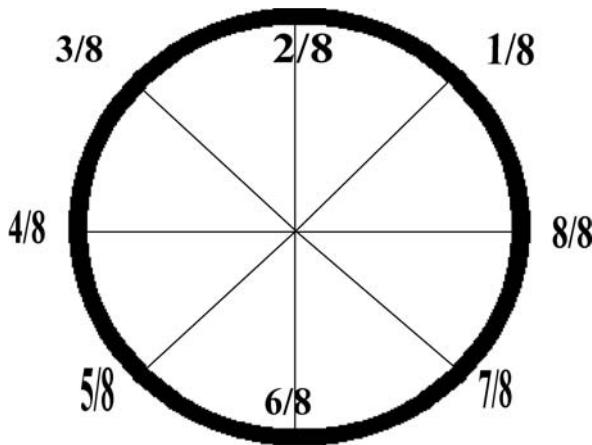
Figure 9.14

analysis: the trading year is nothing like 360 days. In my experience this results in two things happening. Either the chart has to include space for weekends and holidays to some extent or if it is simply a five-day week chart then errors are naturally embedded in the charting itself. This is why I like to use Gann fanlines for my analysis close to the origin of the pattern but give it less importance as time progresses and the price action is significantly far away from the origin. What 'significantly' away means in reality is different in each asset class and indeed in each instrument. I have found that Gann is fairly reliable for those instruments that contain a strong if not total element of 'interest', i.e. continue to give value even though there is no trading at the time. Bond and interest rate futures and indeed bonds and near cash instruments such as Certificates of Deposit (CD) and commercial paper are ideal candidates for Gann analysis, as are some energy commodities, with currencies next as they trade in an extended almost seven-day cycle, equities next and metals and weather as least applicable. Agriculturals are ideal candidates for Gann analysis, but this has little to do with the circle of price and more to do with the circle of time, given that many agricultural instruments are affected by the seasons throughout the year and may only be harvested once or twice in a calendar year.

GANN SQUARES

Earlier the comparison between Gann time and price 360° was discussed, but leading on from that is the use of a non-chart analysis for Gann, which is equally important and can be easily reproduced. In the playground children are introduced to interesting facts about numbers and see the number spiral shown in Figure 9.15. Diagonals are
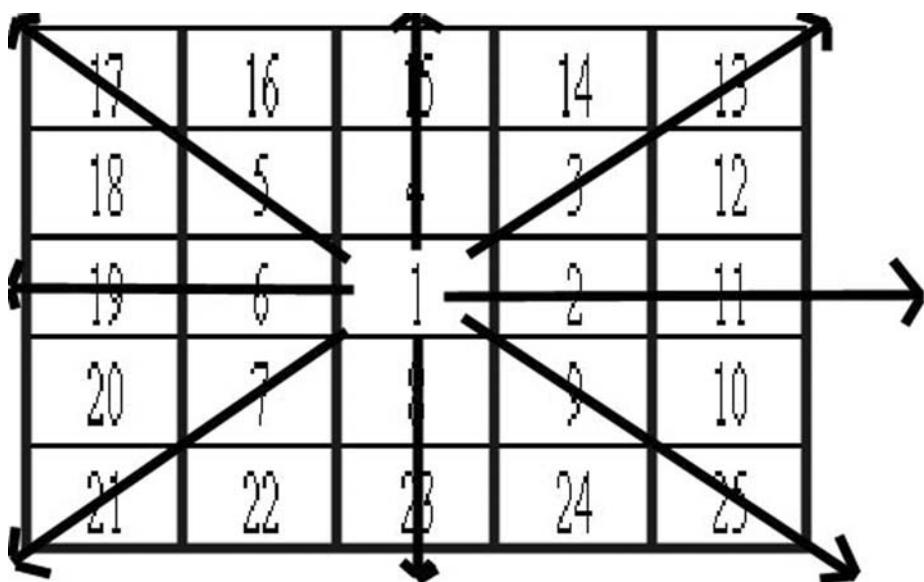
Figure 9.15

drawn on this as well as the cardinal points, which gives key Gann numbers as the spiral extends. I have not used this very often but have found the Gann hexagon a very useful tool on several occasions when looking for key yield predictions and also yield turning days. The hexagon is constructed in a similar way to the Gann square. I find using a spreadsheet to calculate this the best method to use. At the centre of the hexagon I would place a key yield level, such as a significant high or low, and watch the various key levels from the resulting calculation. I like to see each cell of the spreadsheet grow by 1 basis point. A basis point (b.p.) is the smallest yield move and corresponds to 0.01%. The key radii to look out for on the hexagon are 90°, 180°, 270° and 360° and the diagonal values across the 120° and 240° lines. See later in this chapter for application experiments using the Gann hexagon.

Some practical examples of Gann fanline applications follow.

BOND AND INTEREST RATES

The DTB Schatz futures chart shows all the necessary qualities for Gann analysis. Notice that this is a continuation chart of the front month futures contract. The low seen in April 2002 in Figure 9.8 is a perfect origin for this analysis and price action did behave as expected, with moves through the 4 × 1 (price × time in the common

description) initially and then vibrating between 4×1 and 3×1 for some time. It is only on the break lower in May that the contract slides towards the 1×1 line, which initially offered very little support, and the 1×2 line attracted. This held firm and the bounce triggered a period of consolidation about the 1×1 line before the move is started towards the 1×2 line once again. That took some time to complete and even once it was attacked there was little impetus to keep going. By treating the contract as a entity/personality it is easier to suggest that the effort taken to move away from the 1×1 line has caused some exhaustion and hence reluctance to break higher to the next line. This is comparable to the effort taken in fractal analysis, where moving from the strange attractor takes much of the energy out of the system. Beyond September the contract enters a bullish phase, which is very profitable, but from Gann analysis this is seen as simply drifting along and the only real excitement comes on the slide from the high above 107.30 back towards the 1×1 line again.

In the DTB Bobl futures chart two fanline systems are shown for illustrative purposes. The origin of the first is again at the March 2002 low and the contract shows similar behaviour to the Schatz in Figure 9.11, but this time the 1×1 line is safe from attack throughout the whole time series. Notice the period of narrow bars in Jan 2003 about the 3×1 line. This comes at the tail end of a range breakout. The failure in traditional technical analysis terms to see the contract price extending is critical and the subsequent break of the Gann fanline sees a sudden and violent move towards the 2×1 support line. Although the break of that fanline support looks overdone in retrospect, there is some clear 'balancing' of the move with the attempt to recover. Failure results. Interestingly this shows a very rare pattern on the daily chart, a triangle failure. Triangles as we know from our work in pattern recognition are in general continuation patterns, but here we have a reversal. Again at the top of the next rally the contract fails to attack the 3×1 line and there is a move back to the 2×1 line, this time finding very little support, and the contract continues to slide until the consolidation about the 1×1 line later in July–August. At this point there has been too much 'time' spent in this pattern and the Gann fanline should be reduced in importance. The significant high at 115.24 should be seen as the perfect place for a new but negative fanline to be drawn. Although this is not working out in the initial phase, as time progresses it can be seen that the 4×1 negative fanline is indeed offering very strong resistance and is behaving very much like a channel resistance line until late August before attempts to break out of the pattern develop. Notice the period of consolidation in August at the conjunction of the -4×1 line and the 1×1 line in the original fan. This is fairly common. When two or more fanlines intersect, price action often consolidates, as this is like two ocean waves meeting at a point and hence increases the importance of that price zone.

In the LIFFE EuroSF futures chart (Figure 9.16) the traditional 'drifting' of an interest rate contract is seen within a Gann concept. On both occasions where broad
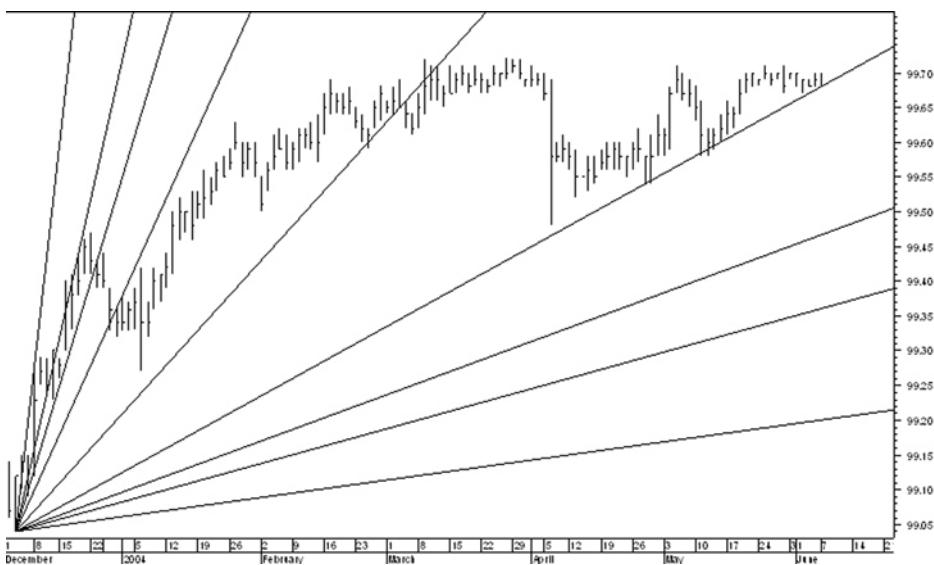
Figure 9.16
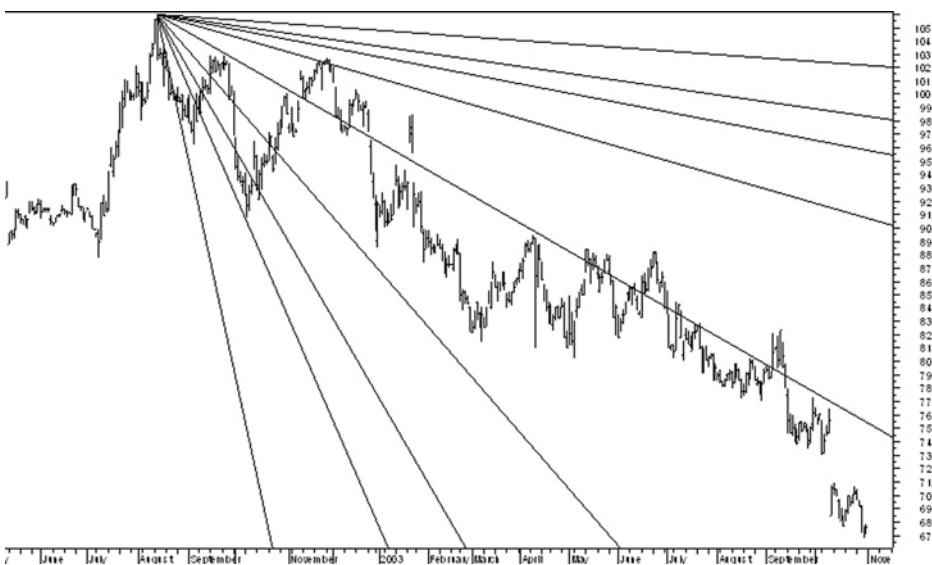
sideways moves developed (January and April 2004) the contract kept moving towards key Gann fanlines, with the 1×1 fanline offering very strong support throughout the April–June period.

AGRICULTURALS

The orange juice (FOJC) chart (Figure 9.17) shows a large negative fanline, which has been an excellent predictor of price action. From the high above 105 the contract shows marked attraction to the fanlines throughout the life and indeed major moves were seen on failed attempts to break lines in August 2002, October 2002, and the bearish moves from the 1×2 line in November of that year to see the 1×1 line attracting once again. The subsequent price history shows how important the 1×1 line is as trading has kept broadly to this fanline throughout.

METALS

A small distinction has to be made between those metals of the precious kind (platinum group, gold, palladium and silver) and those of the non-ferrous kind. Precious metal prices are driven by more forces than those of the non-ferrous metals
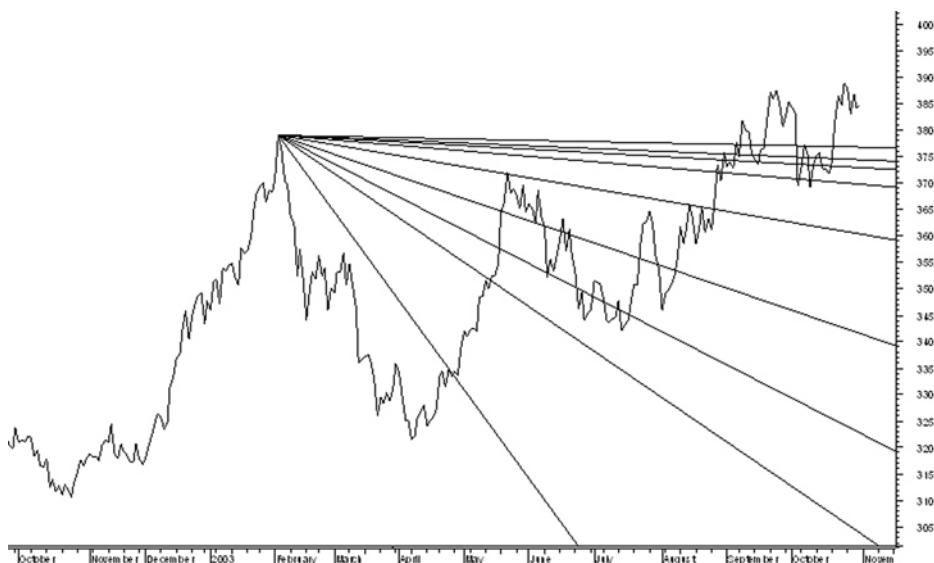
Figure 9.17
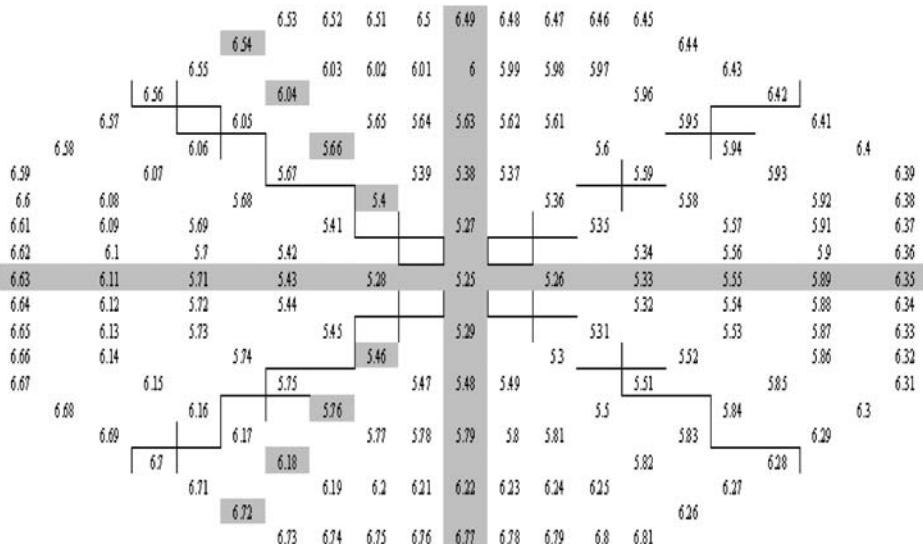
and analysis is a little different. Even within the precious group, the platinum metals group behaves differently from gold and silver. Take a look at this chart of silver (Figure 9.18). Silver prices are fairly volatile but the actual values of the price since it is 'cheap' are relatively small. This compares to aluminium, for which there appears to be an annual cycle of demand.

When comparing to gold, I have drawn a negative fanline from the early 2003 high on this weekly chart. Although this was taken out later that year, at the time of drawing the Gann fanline this was a very significant high, and resulting sell-off and recovery back into the fan allowed some interesting positions to be taken as the correction developed. Notice how fanlines acted as strong support when under attack and any penetration zones are seen as broadly consolidative about the fanline until the attempt in September to break higher once the 1×1 fanline is taken out. Gold struggled to move significantly higher from the 1×1 line and once it did and the 1×2 line was taken out, the flight higher was confirmed and has lasted fairly well, with the congestive weekly fanlines acting as very strong support back in late September and into October.

I found such analysis gave excellent results for the UK gilt market (see Figure 9.19). The Gilt market is an interesting mature market which has existed for centuries and has well-known long-term cycles. See Tony Plummer's *Forecasting Financial Markets* for further detail. Although the gilt market is relatively small in comparison to some other domestic bond markets, there are a significant number of players in the market, from

Figure 9.18

Figure 9.19

Figure 9.20

long-term holders such as pension and insurance funds to short-term investors. This adds a lot of depth to an otherwise fairly contained market.

In this example (Figure 9.20) I have used the 5.34% high on 17 May 2002 as the starting value of the calculation and have identified Gann days from using the 120° and 240° lines at this stage. Notice the values in the initial cycle are 5.19, 5.13, 4.93, 4.83, 4.55, 4.41, 4.05 and 3.86. Corresponding yield levels are identified on the chart showing the initial attack level. For some yield target values the hexagon value worked well a second time (especially in September and December of 2002 and later in May of 2003), either as recurring support or resistance. It is of particular interest that the turn in the yield market came at 3.86. Notice that the yield levels identified by the hexagon are significant, with the exception of the 5.13 level. An analyst would be very happy with these levels as targets and support levels as the yield declines. It has to be noted that this method worked from the creation of the significant high on 17 May and could be predicted from that day. If the threatened slide in the yield did not develop after that date I would have let this analysis lapse.

I have been using the hexagon for some time in my analysis of the gilt yield before I thought about trying out the hexagon to predict dates of significance in the future (see Figure 9.21). This was surprisingly good and although on real applica-tion there was very little corresponding date and yield value, applying both these techniques gave me objective values and dates to concentrate on and I was very pleased with the results.

Figure 9.21

Looking at the bounce in the gilt yield, corresponding analysis gives critical yield values of 4.01, 4.07, 4.27, 4.37, 4.66, 4.79, 5.15 and 5.33, as shown in the chart in Figure 9.22. Remember that it is possible to use the yield levels calculated from the Gann hexagon of 5.34 as well, but these are not as important at this stage. They remain secondary to those yield levels calculated from the hexagon of 3.86.

It can be seen from these charts that the Gann predicted yield and time values are very good indicators and since these can be generated as soon as a critical level has been made, there is no 'wait and see' to concern the analysis. This technique works very well for the gilt, but what about other asset types?

Some asset prices are too large to bother with this system as the increments (a tick) would not be sufficient to generate significant prices, but the day count will remain good. In the following examples for corn continuous I have taken the significant low and high and placed critical dates (vertical lines) and critical supports (horizontal lines) on the charts. There is no significance to be drawn from intersections.

In the first case of generating levels from the low in May 2002 (see Figure 9.23), the days suggested are not very good in hindsight but the resistance levels suggested are excellent. Look especially at the May–June 2002 period which constrains the trading for the whole month and then the move higher is seen attacking the next zone of congestion. Notice also that the overextensions in August and September resulted in corrections back to the critical supports before the next weakening move developed

Figure 9.22
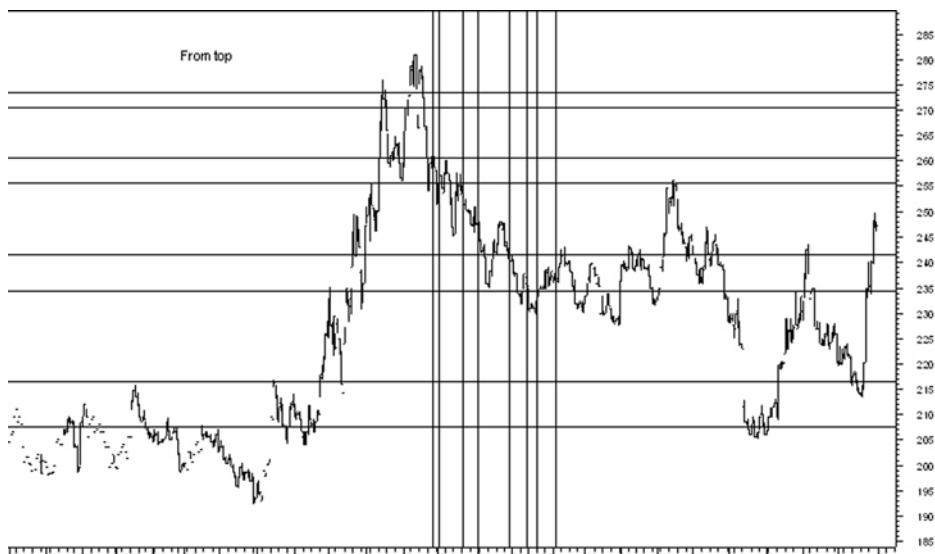
Figure 9.23
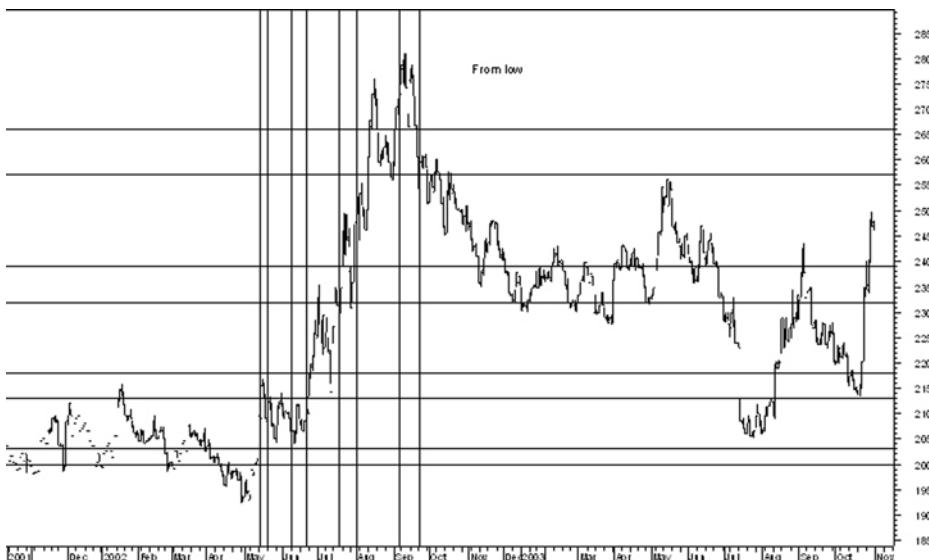
Figure 9.24

further. The extended period of congestion about the December 2002–April 2003 area has been constrained by two levels once again.

Looking at the calculations from the high in September (see Figure 9.24), again the dates are not good but the price levels are very strong and again capture the period of consolidation up to April 2003.

These two hexagons can be used for increments of any period so for weekly data the increment on the day count should be set at seven. The usefulness of the hexagon seems to be dependent on the asset class, but the generation of price levels is not. Analysts should not dismiss this technique out of hand but experiment with further application by trial and error.

Most analysts who use Gann analysis only use the most simple of the theories of Gann and in the main rely on charting packages for their analysis. This is fine if the analyst is just showing off but to apply real analysis takes time. I have known analysts who simply use the default settings on charting packages to construct fanlines and this is not good enough. It is critical not only that the origin of the fan system is placed on a key level but that the increments are correctly used. For example, many decimal prices are in general too small to have a 1×1 line, i.e. one day to one tick formulation, and I have found that using one day by ten ticks often gives a better looking result. In the case of those instruments that still use the 32nd format, further modification has to be used and here although one day by one tick (1/32) looks fine some tweaking has to be done to make the one point (32/32) at 32 days. In any case,

is 32 days seen as 32 trading days or calendar days? This is a difficult decision to make and I prefer to use 32 days as 32 trading days as long as I remember that the weekend and holiday error starts to kick in fairly early.

TIMING IN GANN ANALYSIS

Gann analysis has fallen somewhat out of use as the theories suggest that the patterns will lag the market action. This is not always the case. I believe that this complaint comes from analysts who are not careful enough when applying the rules and are indeed careless when applying the system to electronic charts, as mentioned above. The key here is not to use a Gann fan approach for periods that are sufficiently far away from the origin. This I call the 'weekend error' and as weeks progress these are compounded. However, a careful application of the rules can and does give excellent results. Looking at some of the charts in this chapter shows roughly when the fanline system fails and it can be seen that it is often far from the origin. Only continued study and application of these techniques will tell the technician when the pattern has run out of steam.

Again this is a call for continued technical education and study. If Gann himself said he was learning each day then we have to take notice of the master and continue to study and back-test our own personal applications and theories. Although past history is a strong indicator of future events for the technician, current conditions may be significantly different from then and even more careful application is needed.

Gann analysis is not difficult. It probably needs more care and attention to fine detail than many of the other techniques of technical analysis, but some excellent results and price and time projections can be gained. Gann analysis outwith the techniques mentioned in this chapter have had a bad press, especially those related to planetary motion and moon phases, but the general technical analyst really has little use for these techniques in a day-to-day trading environment. I believe that sticking to the more 'mechanical' rather than 'esoteric' theories of Gann is good enough, as long as the analyst remembers the key significance of historic and critical highs and lows and that where fanlines are concerned the introduction of weekend and holiday non-trading days can give some strange results the further that time moves from the origin. Many analysts get around the problem of scaling the 1×1 line by applying a simple 45° line on the chart under discussion. This is a good enough approximation of the price $\times$ time ratio for many, but the subtleties of Gann are sometimes not in the 1×1 line at all but in what happens with 2×1, 1×2 and so on lines. Gann is a beautiful technique to try and use, but confidence, like many of the techniques of more traditional (and dare I say mundane) technical analysis, only comes with continued practice and refinement.

10
Other Interesting Studies Using Synthetic Ratios
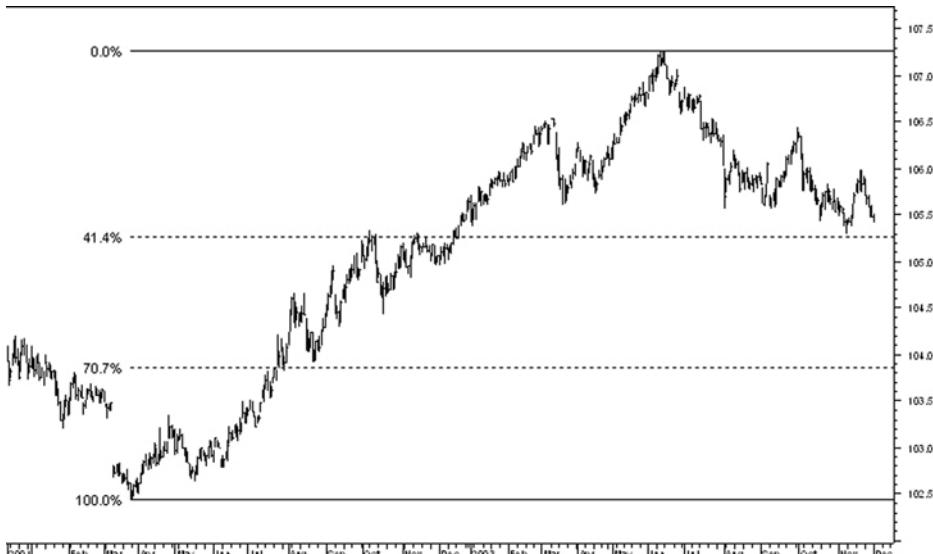
Experiments with $\sqrt{5}$, $\sqrt{2}$, squaring of circle and neo-platonic retracements.

In this chapter some applications that do not have a clear historic basis are looked at and tested within market conditions. This chapter looks at some further extension of the 'art' of technical analysis and tests whether such 'abstract' techniques are useful to the technical analyst. When considering the application rules and methods discussed in earlier chapters, there may be the impression that technical tools are 'fixed in stone' and cannot and should not be altered. There cannot be anything further from the truth. Technical techniques are always developing, as are new patterns and rules and especially momentum studies. When using a screen-based charting service, the sheer number of techniques and studies that can be applied to a simple chart may give the analyst the impression that more information cannot be added. Are not all technical tools already discovered and under use? Not at all is my response. In my time as a professional technical analyst I have seen the traditional bar and line chart and Point and Figure chart being superseded by the introduction of Candlestick Charting and indeed Market Profile™. Although the interpretation of candlesticks needs some deeper study, as does Market Profile™, these techniques are still relatively underused. Almost any user of price information prefers to have a candle chart on display, not because they understand the groupings of the particular patterns or indeed could tell an Harami from a Black Crow, but the display lends itself to easier viewing of price action as the day develops. It is a careless analyst who would attempt to guess what the candle pattern is going to be once the end-of-the-day price is added, and indeed predicting the colour, shape and extension of a candle is dangerous in the extreme. Similarly for the distribution pattern

on Market Profile™, which tells a different story if the pattern is double from one that is normally distributed. Analysts have to remember that intraday charting is fraught with danger and errors are often made with inexperienced analysts predicting candle or distribution patterns too early in the session.

Although the following techniques are not as easy to construct, the experiments below show that they do have some merit. The Fibonacci progression and the relationships within the sequence are not the only irrational numbers that can be considered. As $\sqrt{5}$ is part of the solution to the original equation from Chapter 1, this is an ideal starting point. Here in this chapter another irrational number will also be considered for completeness, that of $\sqrt{2}$. The expansion of the Fibonacci spiral seen in Chapter 1 suggests that other irrational expansions may suit as analysis tools, especially the case of $\sqrt{5}$ and $\sqrt{2}$.

Taking $\sqrt{2}$ (1.414) as the first example and looking at the ratio $1:\sqrt{2}$ gives 0.707. As normal this should be expressed as a percentage, 70.7%. Does this work with charting? Instead of using 38.2% and 61.8% as in our Fibonacci analysis elsewhere, take 41.4%, which is from the decimal value of $\sqrt{2}$, and 70.7% as our starting values. This gives the interesting chart shown in Figure 10.1. Here we have a chart that looks little different from a more traditional Fibonacci retracement chart, but it is fairly obvious that the values used to mark out the retracement are not the traditional ones.

Figure 10.1

Figure 10.2

Now looking at $\sqrt{5}$ (2.236) and focusing on the decimal part and the ratio 1:$\sqrt{5}$ gives 0.447 (44.7%). Again taking 23.6% (which we know is already a Fibonacci valid retracement) and 44.7% gives the charts in Figure 10.2. It can be seen that these two charts create fairly decent retracement levels for the attention of the analyst. These will be our starting values for the experiments later in the chapter.

Taking a slightly different tack next, it is known that ancient geometricians were interested in the puzzle of squaring the circle, and by extension cubing the sphere. Part of the following experiments will use this relationship between the sphere and the cube as additional tests of retracement appropriateness. To calculate the relative ratio of the sphere to the cube, set the volume of the cube as one. The circumscribing sphere has a radius of 0.5 and hence using the formula $\frac{4}{3}\pi r^3$ for the formula of the volume of a sphere, this gives the result

$$\frac{4}{3}\pi\frac{1}{8} = \frac{\pi}{6} = 0.5223$$

The ratio of the cube to the sphere is then 1:0.5233, which is 1.911 in decimal form. As in the previous examples, take 91.1% and 52.3%, which are the decimal parts of the volume of the sphere, as the retracement values derived from circumscribing the sphere (see Figure 10.3). In testing these 'retracement' levels, I have used a number of different charts, reflecting different asset classes.
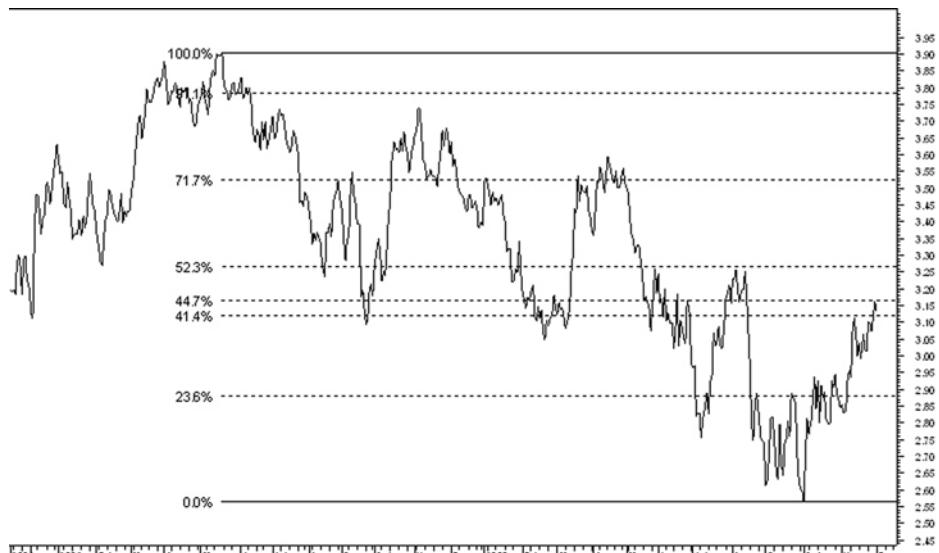
Figure 10.3

EXPERIMENT ONE

Figure 10.4 is a line chart of the ten-year yield spread of the German Bund over the
Japanese Government Bond (JGB). The origin of the move is seen at the 100% level
and the low at 0.00% on this chart. In the recovery move from the October low a small
period of oscillation about the 23.6% retracement is seen. We already know that this
is a 'traditional' Fibonacci retracement level so there is no surprise here. However,
looking further ahead, the spread widening move looks to be struggling in the next
retracement zone, where 41.4% and 44.7% retracements are found. This close con-
junction is offering very strong resistance (see Figure 10.5). It must be remembered
that the retracements cannot be constructed until after the low in September so occa-
sions previous to this date where the lines have acted as strong support or resistance
are coincidental. What matters in this chart is how the resistance levels will cope
with a widening in the spread as the recovery move develops. Already the 23.6% has
been fairly strong and analysts will have to wait to see whether the 41.4/44.7%
resistance levels will hold up under the current attack.

This next example is the German 2Y Schatz futures (Figure 10.6). Again the
23.6% retracement level acted as strong support in the downturn from the high and
has acted as strong resistance on attempts to recover. The late September 2003 final
attempt to break through the 23.6% level failed to extend and the contract is seen
slipping back to the conjunction levels of the 41.4% and 44.7% retracement levels.
This should offer strong support again as the contract slips and additional support

Figure 10.4

Figure 10.5

Figure 10.6

will come from the last time this zone came under attack. Already in this experiment it seems as if the close proximity of the 41.4% and 44.7% retracement values is adding an additional layer of resistance or support whenever this area comes under attack. With the downturn looking assured since there has not been a successful attempt to see price action recovering, short-term attack to the upside should be short-lived, and there is now a traditional congestive resistance zone from the late July period acting as strong resistance. The key next move is to see whether the contract will be able to penetrate the 41.4% and 44.7% support levels and from there to see the congestion about the 52.3% under pressure. Note that traditional analysis shows that in the 52.3% area congestive trading was the norm back in July–September 2002, so this should be a strong region of support once again.

In this example of the Bund-Swiss 10Y yield spread (Figure 10.7), the retracements have come under increasing threat throughout the attempt to recover. Previous attempts to break higher have failed to break the 41.1/44.7% congestion of retracements and until late September to early October this zone looked safe from attack. Once again this key zone is offering very strong resistance as despite there being several successful breaks of this zone to the upside the spread has not been able to totally break free. Even in the current price move this zone is proving very difficult to break and spread widening moves are going to remain limited. Notice that this pattern is now an overextended flag pattern using the bounce from under the 23.6% retracement line as the 'pole'. This pattern is running out of validity as the congestion

Figure 10.7

extends. This is a practical view in my experience, as the overextension of a 'flag' will find the flagpole struggling to support it. Normally an analyst will watch for the more traditional failure of a flag pattern if one-third of the height of the pattern is attacked by the developing flag, but I believe that there are other reasons to call the end of a flag pattern, and overextension is one of them. Looking at the chart, the September congestion in 2003 is at about the 23.6% retracement level with a recovery (spread widening) move again threatening the 41.4/44.7% zone, but the spread is struggling to advance from there. However, the 52.3% retracement level is seen to be in danger once there is a successful break of the recently developed congestion. Once this is confirmed, the congestion above the 52.3% retracement line should come under pressure, but this is a key congestive zone as previously the spread struggled to break above 1.85 in April–July 2002 and again in early 2003.

In this final vertical retracement example, the 5Y German Bobl futures is again testing the retracement at 52.3%. The last time this happened the contract bounced significantly, but was not able to distance trading prices from that congestive retracement zone at 44.7/41.4%, which again has proved very difficult to break. This is an excellent example of the layering effect necessary to come to a valid technical argument. It is imperative that an analyst layer as many arguments and techniques as possible to generate a view. The subsequent slippage in the Bobl price now threatens the 52.3% support level. Throughout the life of the current broad downmove, these synthetic retracement levels have performed well as support levels. Looking at the June–July period in

2003, the 23.6% retracement acted as strong support initially and then as strong resistance once it was taken out. The congestion of retracements at the 41.4/44.7% area again supports well and subsequently there has been broad consolidation about these levels with only a tentative attack on the 52.3% support level. However, given that there is a huge Head and Shoulders formation on this chart, the analyst can be relatively sure that the 52.3% support level will break this time and the trigger moves through the congestion seen in August–October 2002, leaving the 41.4/44.7% congestive area as strong resistance.
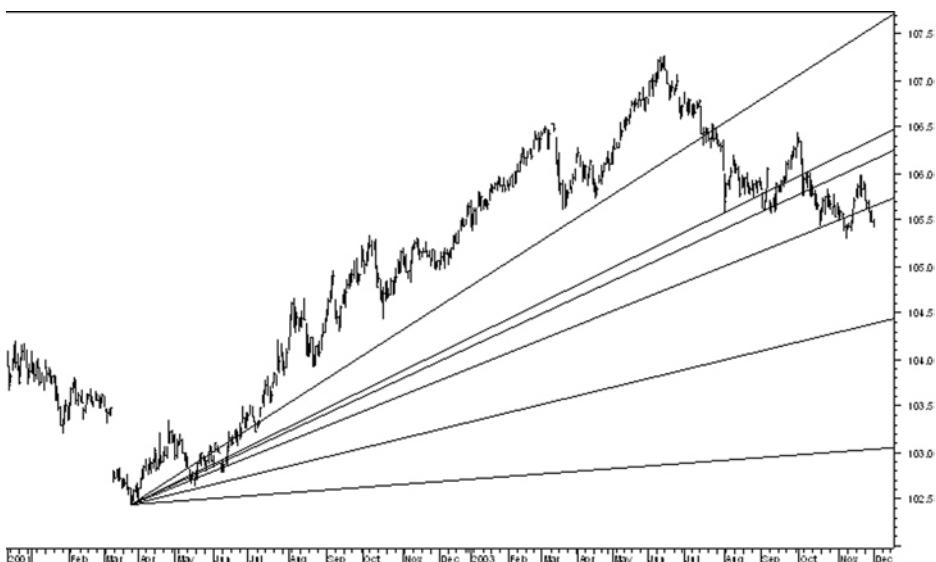
CONCLUSION ON VERTICAL SYNTHETIC RETRACEMENTS

While there is little additional information gained from using these $\sqrt{5}$ and $\sqrt{2}$ and circle retracement levels when compared to traditional Fibonacci retracement levels, it is clear that having deduced these from 'natural' situations and concepts allows some degree of appropriateness. The retracements themselves so far in this experiment have about the same success rate as traditional retracements, but draw attention to the success of the 23.6% retracement, which appears in both traditional Fibonacci retracement studies and here in this 'synthetic' test. Although it is time consuming to add these to a chart, in some cases these tests do bear significant fruit, so application of these retracement levels cannot truly be dismissed. However, current market demands do not allow for such time consuming tests to be completed, and in the case of synthetic vertical retracements the competent analyst gains very little by adding these levels due to the pressure of workload.

However, this is not the case in the following experiments. In the following cases, I have used the same charts, but this time created 'fanlines' to assist in analysis and to test the effectiveness and appropriateness of using these retracement levels. Overall the application works well, indeed better than in the previous experiment with vertical retracement applications. This would suggest that the 'natural' origin of these retracements offers itself to analysis where a 'natural' element exists, in this case the time axis. This is an interesting supposition.

EXPERIMENT TWO

Again the Schatz chart is used in the first instance (see Figure 10.8). Remembering that the fanlines cannot be constructed until the significant extreme of price has been generated, these fanlines only become useful after the May high. The fanlines are constructed from the origin price, through those points where the vertical retracement would occur and the lines extended.

Figure 10.8

In the case of the Schatz, this fanline pattern gives some excellent results. Notice the following:

1. Congestive trading about the first fanline at 23.6% in June followed by a sharp uncharacteristic to the next fanline support later that month. This is comparable to the moves seen in traditional fanlines. Looking at the normal price action of the Schatz contract on this chart, sudden lengthy bars are few and far between, suggesting that this contract usually takes a gentle approach to price action. However, this is replaced when the break in a fanline occurs, just as has been noticed in traditional fanline analysis in earlier chapters.

2. After the June 2003 break the price struggled for some time to move from the 41.4/44.7% fanlines and the attempt to recover fails.

3. Again a period of consolidation about the 41.4/44.7% area is followed by quick moves lower again to testing the 52.3% fanline in the July–August period of 2003.

4. Recovery from the 52.3% retracement level in October fails to see 41.4/44.7% under any threat and the subsequent move sees 52.3% threatened and broken again.

The next move will be interesting as although there is little evidence to stop the contract slipping towards the 71.7% fanline, there is a wide band of consolidation

seen in the previous year to negotiate and this could stall a break towards 71.7%. This is an example of using a nested argument to construct an outlook. It is my experience that some technical analysts rely overly on only one tool at a time rather than looking at as many weapons of analysis as possible. While I still believe strongly that applications that are directly constructed from the price itself are of more value (patterns, moving averages, retracements) than those that get their signals from being derivatives of the price, all technical tools have their place. I like to think that starting a technical test is like looking at a car (price) as it travels, then at the speed it is travelling (moving averages and relationship tools such as patterns and retracements – the first derivative of the price/car perhaps) and then at any acceleration (momentum studies, the second derivative of the price/car).

Looking at the Bobl futures and associated fanline (Figure 10.9) where the origin is at the March 2002 low and the extreme price is at the March 2003 high, the initial congestion about the 23.6% line is followed by moves towards what we now know are key congestive retracements at 41.4/44.7%. This area has acted as very strong congestion in August. Thereafter the failed attack on the 41.4% retracement in the recovery move in late September triggered moves through the 52.3% fanline near 110.00 as the move lower develops further. Despite the August bounce and a fairly serious recovery move from the 52.3% fanline, confirmation of recovery was not seen as the 41.4% fanline held firm at the 112.50 area. The 71.7% fanline support is now in danger, but given the congestion from October 2002, this additional congestive support zone should be difficult to cross. Again

Figure 10.9

this analysis gains from looking at traditional areas of congestive support and resistance in the past.

This pattern of retracements is working very well for the Bobl. An analyst not knowing how the retracements were derived would agree that the behaviour approaching a fanline, and more importantly when it is broken, is 'traditional', especially within the May–September 2003 price action. Now that the focus has switched to looking at the 71.7% fanline as support and the congestive support that was offered in late July and September of 2002, there is little to encourage a break back higher for now. Additional negative evidence comes from the clear Andrew's pitchfork pattern, which has developed since the high in April. See Chapter 8 on 'Total Analysis' for a further discussion of this pattern.

In the case of the Bund-Swiss ten-year yield spread (see Figure 10.10), this steep fanline pattern looks similar to a more traditional Gann fanline, with the 52.3% line seen as the centre of some consolidative moves from late July 2003. Notice how the movement of the spread during that period remains close to the fanline, as is often the case with Gann fanlines. This is an interesting conjecture as this level is fairly close to the 45° line which, if applied, would trap more of this move by acting as strong support. Notice also the sharp move from the 52.3% fanline towards the 71.7% resistance fanline and subsequent consolidation in the last phase. This is very similar to moves seen frequently in Gann analysis once the 45° line is taken out and the next appropriate fanline begins to attract. However, there is very strong historical support about the 1.60% spread level, which has been a congestive zone ever
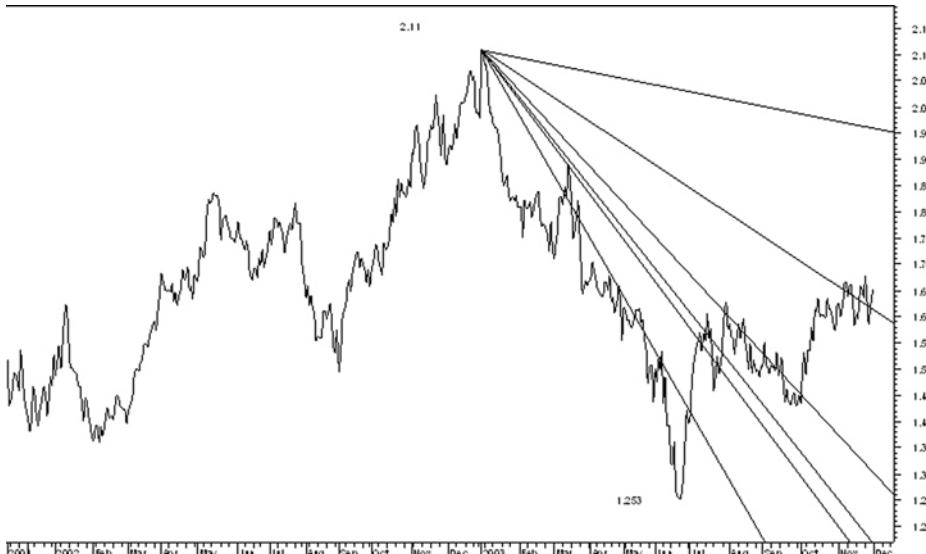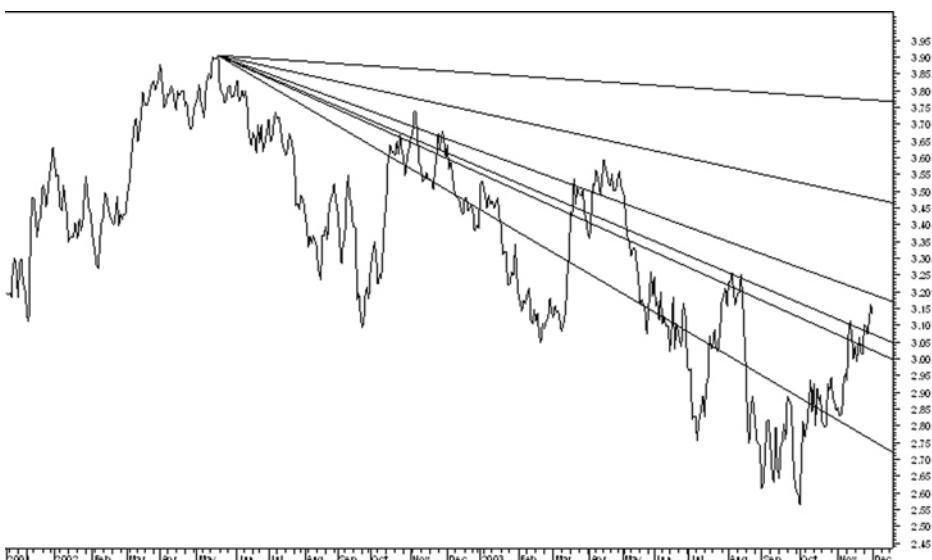
Figure 10.10

Figure 10.11

since the attempt to attack the 52.3% fanline in the early October move. This is going to be a difficult region to clear, as from early 2003 the 1.70% spread level area offered very strong support. Therefore short-term moves will remain constrained by the 1.60/1.70% area a little longer. Again there is a flag developing on the spread chart but it is in little danger at this stage in the development of the flag itself.

In the next example, the Bund-JGB ten-year spread (Figure 10.11), the general trend has been along the fanlines from the high in late May 2002. There is obviously a cycle of peaks and troughs on this chart which should be investigated, but the effectiveness of these looks to be waning as the current move in the last phase is see-ing the period of the cycle extend a lot more than previously. Turning to the fanline pattern again, the major attraction has been to the 23.6% line since October 2003, but the frequent escape moves from this line have seen the synthetic retracement fanlines under pressure. Notice again that the 44.7/41.4% retracement lines offer strong attraction and support/resistance throughout the spread widening move. The spread has finally been able to escape the attraction at 44.7/41.4% fanlines and this final bounce back higher now sees the 52.3% retracement fanline under pressure. However, the spread is not safely out of the attraction zone of 44.7/41.4% and until there is a successful significant move from this area, the threat of sideways consol-idation and even a slide back to the fanline congestion cannot be ruled out. Addi-tional resistance to subsequent moves comes from the congestion seen in the July–August period, but as the fanline could not be drawn until the October low, the

consolidation about 41.4/44.7% seen on the chart is purely coincidental. Recovery hopes rest here on a break in the 52.3% fanline and move higher above 3.20%, but again there is the traditional congestive resistance zone to navigate first ahead of that level. Once that has been taken out then there is an increased threat to the long-term spread narrowing move as recovery beyond 52.3% also means an end to the narrowing channel that has existed since the high in May 2002.

THE PYTHAGOREAN, PLATONIC AND NEO-PLATONIC VIEW OF PROPORTION AND HARMONY

Readers are aware that the Fibonacci sequence and its proportions comes from a period known as the Renaissance, but even further back, in antiquity, the search for proportion as a means to understanding the whole, the Grand Theory of Everything of its day, can be taken as far back as the Pythagorean school in ancient Athens, circa 600 BC. However, it was only later that his thoughts on the relationship between music and space (we would think of proportion here) were written down and studied further in the work of Plato (d.347 BC) on nature, music, mathematics and the neo-platonists thereafter. Pythagoras had noted that the notes from the anvil of a blacksmith changed for different hammer weights and believed that the notes were dependent on the weight. Taking this a little further and looking at similarly tensed strings, it was noted that plucking one at half the length of the other gave an octave higher than that of the original length (diapason). Subsequent divisions gave musical Fifths (ratio of string is 2:3, diapente) and Fourths (ratio 3:4, diatessaron) and so on.

In the search for a universal theory linking all of nature, music, mathematics, etc., Plato described in *The Timaeus* how:

> The fairest of all bonds is that which makes of itself and the terms it binds together most utterly one, and this is most perfectly effected by a progression (*Timaeus*, 4).

There were some rules to this (see below), which for Pythagoras summed up the essence of harmony:

> God did not of course contrive the soul later than the body, as it has appeared in the narrative we are giving; for when he put them together he would never have allowed the older to be controlled by the younger. Our narrative is bound to reflect much of our own contingent and accidental state. But God created the soul before the body and gave it precedence both in time and value, and made it the dominating and controlling partner. And

he composed it in the following way and out of the following constituents; From the indivisible, eternally unchanging Existence [Essence] and the divisible, changing Existence of the physical world he mixed a third kind of existence intermediate between them: again with the Same and the Different he made, in the same way, compounds intermediate between their indivisible element and their physical and divisible element: and taking these three components he mixed them into a single unity, forcing the Different, which was by nature allergic to mixture, into union with the Same, and mixing both with Existence. Having thus made a single whole of these three, he went on to make appropriate subdivisions, each containing a mixture of the Same, and Different, and Existence. He began the division as follows. He first marked off a section of the whole, and then another twice the size of the first; next a third, half as much again as the second and three times the first, a fourth twice the size of the second, a fifth three times the third, a sixth eight times the first, a seventh twenty-seven times the first.

This results in the following progression: 1, 2, 3, 4, 9, 8 and 27. It is interesting that repeating the above rules from stage 2 onwards to extend the series gives the following:

$$54, 81, 108, 243, 216, 729, 1458, 2187, \ldots$$

Taking the relationships of the resulting series in a similar way to the Fibonacci series, results in not a single limit but six finite values:

$$29.6\%, 44.4\%, 50.0\%, 66.7\%, 75.0\% \text{ and } 112.5\%$$

For the relationship $n + 1{:}n,$

$$14.8\%, 33.3\%, 50.0\%$$

are obtained, while for the relationship $n + 2{:}n$ and for the relationship $n + 3{:}n$ the following are obtained

$$9.9\%, 14.8\%, 16.7\%, 22.2\%, 25.0\%, 37.5\%$$

From work in previous chapters, some of these values are already known to be important in Fibonacci and or Gann theory, so can be dismissed at this stage. This leaves 9.9%, 14.8%, 16.7%, 22.2%, 29.6%, 37.5%, 44.4% and 112.5% to be tested.

In this example of the ten-year Bund yield (Figure 10.12), the extremes of the retracement are set at the high and low. Behaviour since the low in June 2003 has
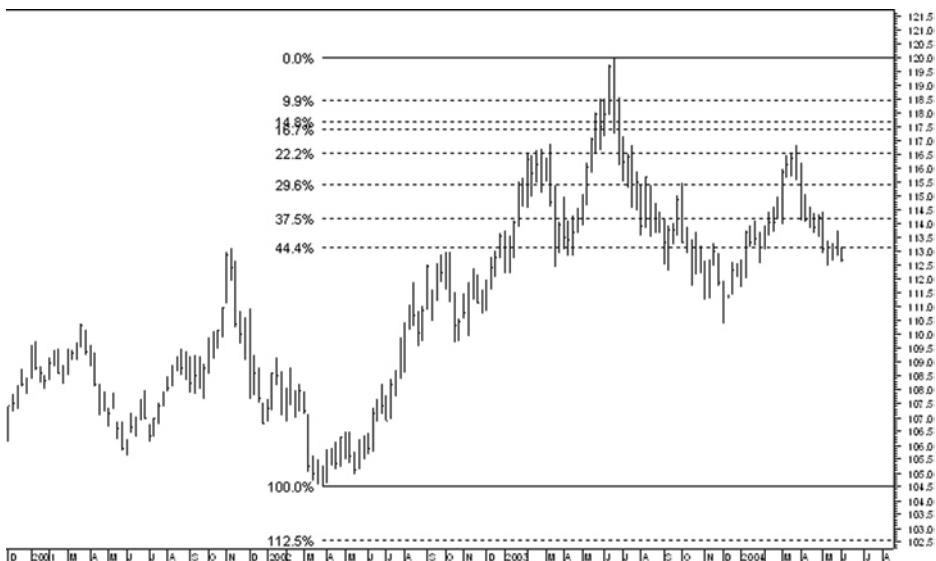
Figure 10.12

generally been positive and in this particular example the neo-platonic retracements have worked very well, especially in the 22.2%–29.6% area, but less well at 37.5%. This may be due to the effect of the more classical 38.2% retracement being nearby. However, it is interesting to note that 29.6% retracement has worked very well as congestive support in mid-July and as support in the August and October downturn. Now that the yield has moved out of this system of retracements it is time to look for other more traditional tools to forecast the yield move, such as patterns and channels and indeed the 61.8% Fibonacci retracement level.

Yields in the Swiss 10Y yield tend to move very slowly and, as can be seen from the scale in Figure 10.13, do not move very far. This system of retracements, being concentrated under the 50% level, in the main is a good indicator for instruments that do not move too far or too fast. Notice again here the 22.2%–29.6% area and later on the struggle to move out of the 37.5%–44.4% zone. So far in this experiment it looks as if there are levels that are more important than others and that those levels that are close together will combine in some synergistic way.

In this example of continuous corn (Figure 10.14), the downturn from the high was fairly fast at first but again the 22.2%–29.6% area stems much of the decline when under initial test. The downturn does not come to an end but the particular sharp decline does and a more consolidative if choppy downmove results. Notice that once the period of consolidation in early 2003 is over then the contract attempts to recover again but 29.6%–22.2% holds and forces a rethink and slide lower again.
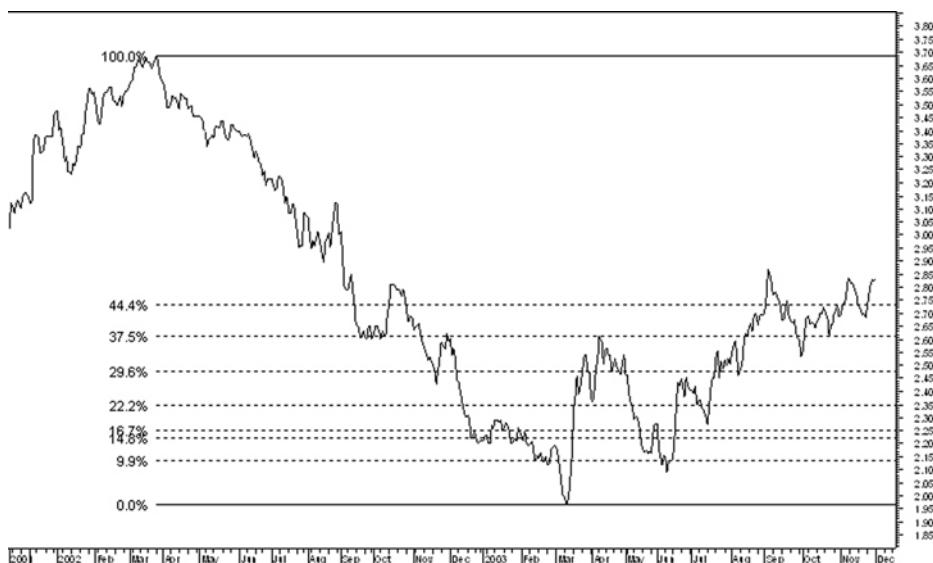
Figure 10.13
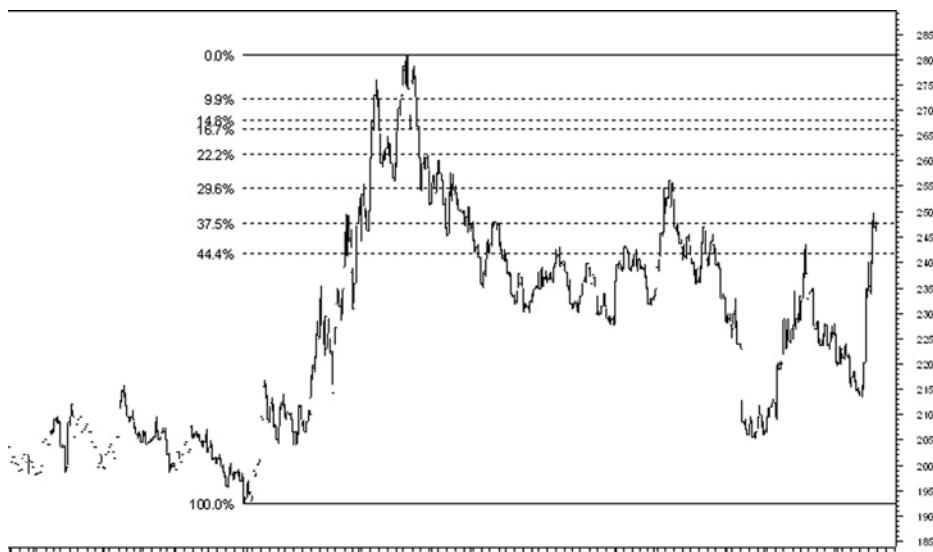
Figure 10.14

Figure 10.15

The Dax index futures contract (Figure 10.15) has suffered alongside other equity indices since the fall in 2002 and recovery moves are proving difficult. As can be seen from this chart, the recovery has been gradual and shallow. Retracements have acted as strong resistance and then support and by the end of this timeframe the contract is seen struggling to advance even as far as 50% of the big downmove. Once again the 22.2% and 29.6% area has proved a difficult zone to break, but after the June 2003 period this has acted as strong support on many tests. Breaking higher still has a long way to go before becoming convincing.

In the longer-term chart of Figure 10.16, current price action is far away from the neo-platonic levels, but what is interesting is the behaviour after the 100% retracement levels has been taken out. Notice that on the initial test in May 2003 the contract bounced back higher again and then again in late June when this resistance level was taken out the contract failed to reach through the old 100% retracement, which is acting as strong resistance.

From the above exercises it would seem that the neo-platonic retracement levels do have some use in technical analysis, especially in markets where there has been a behaviour change from one form to another, especially in the case of strong downmoves followed by gradual increases. The levels themselves are completely synthetic and I would not suggest using these over more traditional and tried and tested Fibonacci retracements or indeed Gann retracement levels. This chapter has taken some interesting derived numerical relationships that have some 'natural' occurrence, whether in nature, geometry or music, and applied these to contemporary chart behaviour.
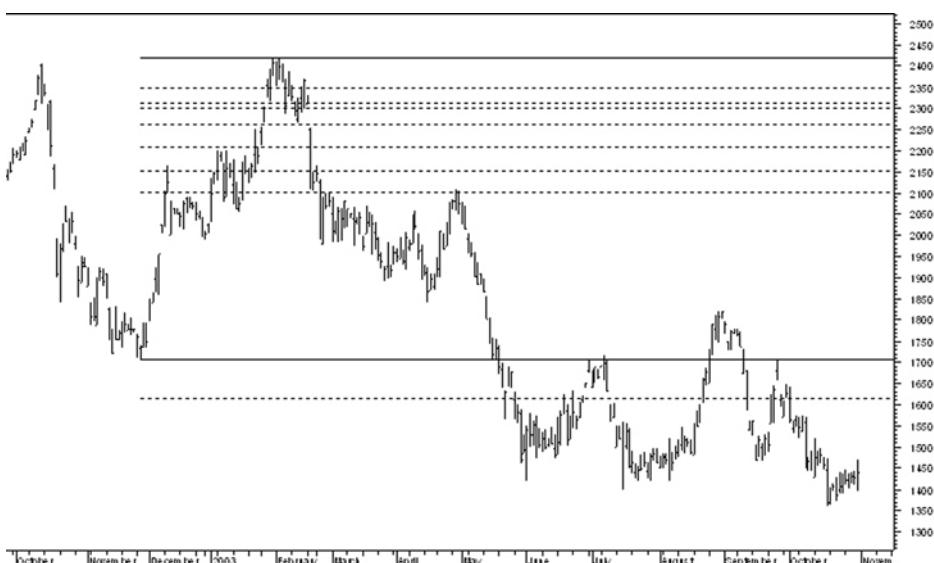
Figure 10.16

Application and testing of the success of Fibonacci tools has fallen out of favour in recent years. In part this was due to the overabundance of momentum studies, which the move from paper to electronic charting allowed. In this book the reader has become acquainted with not only the natural Fibonacci sequence but also some pattern applications as commonly used in financial markets. In addition, common assumptions and errors have been identified and in other places solutions to difficult market conditions. Application of Fibonacci to financial markets is not difficult as long as some rules are adhered to and I hope to have pointed students and experienced technical analysts to what they could be missing if they avoid using Fibonacci rules. Application of Fibonacci retracements, fans and arcs is simple and, once the very few rules are known, this is a worthwhile tool in the arsenal of the busy technician.

This chapter has taken the derivation of Fibonacci retracement values a little further by looking at some 'synthetic' values. Although the construction of these is a little time consuming, it has been a worthwhile experiment and should be considered for further study, time permitting.

Technical analysis techniques are not written in stone. There are always developments to be considered and interesting hypotheses to test out. The professional and sometimes overworked technical analyst may not have the time to apply new tests and techniques, but as the body of technical evidence for application to financial markets develops, the analyst should keep abreast of current thinking and new

developments. The search for the Holy Grail of technical analysis – the foolproof answer to predicting market price action – is ongoing. Techniques and collections of techniques are forever being tested in the search for the absolute answer. So far there is none, but some techniques will give better results than others, and no technique is without some merit, for however short a term it lasts and for whatever market and market condition it suits. Technical analysis as an investment tool is a process, and indeed an evolving process. As new techniques are created and tested, older ones tend to slip out of use and favour. That is not to say that they are no longer useful but are simply unfashionable for a time. No better example of this is how Point and Figure charts, which were for decades the favourite of Forex and commodity analysts watching the market, fell out of use when screen-based charting packages became the norm. They fell out of use because many of the original screen packages could not generate any Point and Figure charts correctly, so analysts simply moved away from that technique and favoured others that had an easy display. Personally, even though packages are now more advanced and can generate accurate Point and Figure charts and allow changes of box and reversal size, I believe that they have been out of favour for so long that users will never return to using them in droves. Candlestick charting is now in vogue and the more difficult to use techniques have fallen out of use. This is a pity. Gann and ratio studies have slipped out of favour for the same reason: they are not easily applied, i.e. sometimes a little more effort has to be used to make them appropriate, and in the current high-speed working environment for the contemporary technical analyst there simply is not the time to do this. Ease of use is the buzz-word of the day. While easy-to-apply techniques have some financial merit and reward, some of the more difficult techniques to apply have fallen out of use, undoubtedly given the overuse of and lack of understanding of momentum studies and charting pattern interpretation.

11
Conclusion

The application of Fibonacci ratios to financial market analysis has a noble past. Although the use of Fibonacci retracements, fans and arcs in analysis has from time to time fallen in and out of favour, particular application of Fibonacci analysis remains a strong tool in the arsenal of analysts. Some financial and technical analysts seem to be over-reliant on techniques that require computing power to deliver, for example, RSIs and Stochastics and other less famous momentum indicators. As mentioned before, this is a great help in the analysis of a chart, but the primary goal of a technical analyst has to be on the prediction of price objectives with a reasonable degree of confidence, and tools utilizing price moves, such as pattern recognition and retracements, should be constantly used and should not be overlooked. Favourite techniques come and go as do fashionable ways of looking at price moves. However, seasoned technical analysts will take what they can from new techniques and, instead of discarding old techniques in favour of the new, will adapt and adopt new methods and use them in conjunction with more traditional techniques. I have known analysts who have no interest in traditional methods of technical analysis but who concentrate on Market Profile™ or Candlestick analysis to the exclusion of other analysis tools. While there is some success in this method, I believe that to construct an investment argument from only one technique is dangerous in the extreme and it is better to use several techniques together, as seen in Chapter 8 on 'Total Analysis' in order to get a clear and confident outlook.

With the application to Elliott wave theory (EWT) and the acceptance of the work of R.N. Elliott, Fibonacci levels gained more importance and resurgence in use during the last twenty years or so and remain key elements of EWT itself. However, this has seen the traditional use and application of Fibonacci analysis slip out of the forefront of tools available to the technician, as the association with EWT has suggested that it is only appropriate for use in that analysis tool, and EWT is often seen as the preserve of the few. This is of course wrong, as Fibonacci retracements, arcs

and fanlines are standalone tools as well. When I was starting out as a technical analyst in the 1980s the application and study of EWT was likened to a priesthood: a select club of famous users with the rest of us left standing on the sidelines almost in awe. This is of course an incorrect view of technical analysis but there remains some mysticism regarding Elliott and interpretation, which is very difficult for the 'common or garden' technical analyst to shake off. Yes, often wave counts have to be 'reset' as price action progresses, but this is very rarely due to errors in the basic count, simply that the current wave is changing character. I can compare this to looking at a candle chart showing the current session and trying to anticipate what colour and relative shape today's candle will have at the end of the day. This is a very dangerous summation to make, as candles cannot be viewed correctly until the end of the session. Similarly, Elliott wave counts using the most recent wave moves are dangerous until fairly well established.

Technical analysis has moved from being a tool of medium- to long-term analysis over the last few years and full-time – I hazard to say 'professional' – technical analysts focus on ever shorter timeframes as a consequence of demands made by colleagues and employers. This has seen pressure building on the more long-term tools to become appropriate in very short-term trading frames. However, there are hazards in applying tools and application rules to shorter timescales than a day, as some of the key decision-making rules of traditional technical analysis use warning levels that are too great to be applied in a short-term market or hourly chart. The technical analyst has to be aware that behaviour on an hourly chart may look similar to that of a daily chart, but trend changes happen quicker and faster on hourly charts than on daily ones and waiting for the traditional reversal signal may result in key profits being lost.

Those technical analysts who have the 'luxury' of not having to look at intraday charts do have an easier life. The techniques of technical analysis have been developed over years specifically for daily and longer period charts and have been very successful. The cutting edge of technical analysis at this time comes from the adaptation and creation of tools that will work on an intraday basis, and current work shows that some of these techniques do work well. However, there has been a benefit to this intraday study, that of the techniques of money management and identification of risk. Gone are the days of entering a bull rally and letting positions run. The disciplined analyst keeps an eye on the market and watches for early indications of exhaustion, keeps stop loss levels under review at all times and does not leave dangerous positions open. Market conditions change ever faster and these can wipe out accumulated gains very quickly. Identification of a beneficial financial opportunity has to go hand in hand with identification of price level risks if a profitable trade is to be made. If not, then the position is open to unacceptable risks.

Despite general acceptance of fractal geometry and analysis within some financial markets, there are some applications that are just not suitable for short-term use,

and I believe this is true of the otherwise powerful Elliott wave theory. Forcing this excellent tool on to a very short-term market view will cloud the overall success and this has given rise to elements of ridicule from some corners of the more traditional investment world; by extension the whole discipline of technical analysis has suffered. Fractal geometry assumes that shapes and patterns, behaviours and conditions have the same result (appearance) when viewed up close or from far away. This is undoubtedly true in some ways, as looking at a simple barchart and carrying out analysis on this is not dependent on the type of bar, whether it is hourly, daily or weekly. A barchart is a barchart after all and need not have the timescale identified. This is also true with Elliott wave theory, but from the other angle, as the wave patterns are made up of waves of smaller and smaller 'degree' until they are at the most basic level. It is not a long journey from an hourly EWT count to seeing the Kondratieff wave or other super-cycle.

I have to confess to being an avid fan of Fibonacci retracements and other analyses of this kind, such as Gann. I believe there is a natural system within financial markets that cannot be successfully identified and I think the science of technical analysis fails to address this, but the art of technical analysis, the gut feeling if you will, does. Experienced technical analysts are like surgeons. We practice, practice and practice more. We focus on particular sectors or instruments (if we are lucky) and from being a 'general' technical analyst at the start of a career, some analysts become 'specialists' in some area, whether Commodity, Forex or Equity. Naturally the skills used in our 'specialisation' are applicable to other areas we are not commonly called to analyse; there is something of 'added-value' to our specialist analysis that cannot be encapsulated successfully or indeed correctly attributed simply to good technical analysis. This I believe is market depth in its truest form. Some technical analysts have many years of experience in their particular field and have seen cyclical behaviour many times. It is this 'market memory' that is critical to good long-term positioning, and although it does give an unfair advantage to the technician over inexperienced analysts, market understanding is the easiest knowledge to pass on to the next generation. Like it or not, most new technical analysts read a few books in order to pass various examinations and never look at another technical analysis or market book again. Once an analyst has a professional qualification that is not the end of the process, as understanding the techniques and when they should be applied takes further study or development. It is only when the shock of some new technique becomes popular that many analysts start to look deeper into their profession and at that stage develop an interest in expanding knowledge. Many analysts will not apply Gann theory to a chart from one year to the next and will stick with tried and tested simpler tools. This is not a bad thing in itself, but I believe that true understanding and the development of a trading argument needs many layers of analysis before conviction can be achieved. Fibonacci and Gann have key roles to

play in the construction of a trading argument and should not be missed out because they are time consuming or 'difficult'.

General technical analysts do an excellent job. Most technical analysts fall into this category, but the specialist has definitely something more to add. This could be from developing a lifetime 'feel' for a particular market or from simply having been around through a succession of bull and bear phases in a market lifecycle. 'Market memory' is how I like to describe this knowledge and it cannot be overlooked or underestimated.

A prime example of this may be of some interest. When I became a technical analyst in the 1980s and joined my professional body, the Society of Technical Analysts, there was a distinct generation gap. There were the Great, the Good and the Gurus of technical analysis in the Society who had been practising for years and there was a definite Young Turk group of about my age, but there was a gap of some years between us, which was not filled. I put this down to the attraction of different jobs and careers being available after market deregulation (Big Bang) in the mid 1980s that offered spectacular salaries and different new career paths. This potentially took that generation away from choosing a career in technical analysis. This has meant that the skills that could have been harnessed within that generation are missing and with it the market knowledge that cannot be gained even from looking at super long charts. Interestingly, it is that same missing generation, seen elsewhere in the investment community, that is our harshest critic. Thankfully there is no generation or skills gap missing for those who come after me, which is undoubtedly due to work done in global local societies of technicians in encouraging young people to look at and learn about technical analysis.

Technical analysis is now seen as a positive career role and in some places is valued highly. Gone are the days when traders who had come to the end of their usefulness on a spot desk took up technical analysis as a way to extend their successful careers a little longer. Throughout the 1990s there were many cases of this where technical analysts were analysing markets with little or no formal training, and simply looking at channels and 'easy' patterns and relying on stochastic processes for timing tools. This also gave the application of technical analysis a bad name as much 'on the job' training tends to avoid the difficult subjects such as Elliott wave theory and even more so Gann theory. Anyone with a good eye can spot a trend, channel or congestion on a chart but there has to be some formal education taken before confidently being able to tell what could happen next when any of these easy techniques come to an end and corrections or indeed extensions start to take place. I cannot count the number of times I have seen stochastic charts on traders' desks who do not know how to use them properly or indeed understand the meaning derived from these processes. I have come to the conclusion that many traders keep charts open with as much going on as is possible with an electronic system, as

watching it develop relieves much of the market boredom that exists in quiet periods. This is even more on display with screen charts showing the development of a candle, for who can deny the attractiveness of fat multicoloured charts on a modern flat screen.

Having a formal training in technical analysis keeps the mind focused. There is great excitement in our community when some new way of analysing a market is thought up and everyone is keen to try it out, as there has been an explosion of new techniques to try over the last decades. This should be encouraged, as openness to new developments in technical analysis ultimately makes the tasks of being a good technician easier. Some new techniques may not be appropriate for every market or indeed should not be effective every time, but ongoing learning gives the enthusiastic analyst an opportunity to look at markets in interesting ways.

I remember being invited by the Society of Technical Analysts to give a talk at one of the monthly meetings and was greatly honoured by having the front row filled with enthusiastic long-term users of technical analysis of whom I had been in awe throughout my working life. The daunting task for me was to show how and when and when not to use traditional technical tools within intraday markets. My audience was mainly filled with analysts who look at markets on a daily or longer timeframe and who wanted to know the pitfalls I had come across, and often fallen into, when using traditional daily tools in a very short-term environment. Earlier in this book the fractal nature of charts was discussed in some detail and while it is true that a barchart is a barchart, whether of hourly, daily, weekly or annual data, some application of the art of technical analysis has to be used when looking at sub-daily timeframes. This took many years for me to come to that conclusion, as I had rigorously applied rules that are effective in daily charting analysis to hourly and half-hourly charting only to find that target levels were not reachable and more importantly money management tools such as stop losses were set too far off. It was through deeper investigation and back-testing that I was able to adapt rules to fit hourly data. Indeed, futures market analysis – where much of the intraday trading and analysis takes place – requires tweaking of hard and fast rules that have worked well in daily environments. This is in part due to the size of the prices themselves. In STIR (short-term interest rate) markets where the prices are always less than 100 but do not tend to move very far lower than 90 in the main (the noticeable caveat here is the Exchange Rate Mechanism problem for sterling in 1992), waiting for a 3% break of a trendline as confirmation of a major reversal of trend is too long to wait, as much financial opportunity is lost while waiting for this rule to be met. A much smaller percentage should be applied to a trendline break in STIR markets in order to 'catch' the move before it has gone too far. While some of these markets are dull and not at all volatile, trendline breaks and breaks in retracement can be significant and should be treated as such, but moves in momentum that trigger buy or sell

signals in more traditional timeframes can often give false and misleading entry and exit signs. Analysts have to be careful with false indicators.

Forex markets analysis is quite different. An intraday chart (hourly, for example) is very different from that of a future. This is in part due to the volume of trading taking place. The sheer number of players and number of trades gives intraday Forex charts a different feel and look. This makes them look 'smoother' in a way that is not as clear on other types of chart. Naturally Forex charts have other drawbacks with regard to application of some techniques, but generally exchange rate charts offer interesting opportunities for analysis as they do not show 'holes' or occasions when there is no trading within a timeframe. Lack of hourly trading (and therefore interest) in some quiet markets is frustrating in the extreme and a good chart should always show some traded price within the particular timeframe used. In earlier chapters the lack of interest in Emerging Market instruments in Europe was discussed. Trading volumes collapsed as they were seen to be too risky for investors in the early 2000–2001 period and there were many days when only an exchange-generated end-of-day price was displayed, which made previously interesting charts difficult to analyse. Momentum studies became useless and patterns difficult to see and even switching from barcharts to line charts did not make much difference. A balance between duty to holders of instruments which are in the doldrums who want to know analyst opinion as to future price objectives and the worthwhile application of precious analytical time has to be made. Analysing a market that is in its death throes is very disheartening, as it gets very difficult to be confident when making predictions.

This is also the case with 'new' markets where there is a significant amount of volatility. Previous chapters looked at launch and early activity in some new futures contracts. Wide ranges in the early trading history of such instruments as the BTP undoubtedly made some investors a lot of money, but this same volatility was not a help to the technical analyst. Any contract or other asset that has a daily range in excess of a Big Figure, or multiples thereof, is very difficult to analyse and the technical analyst has to run fast just to keep up. However, in my experience, juvenile behaviour in new contracts does not last long and this could be in part due to more investors and traders starting to take the instrument seriously. The effect of big players entering a market for the first time and staying there cannot be overlooked as they have a huge effect on the price action. In the case of the BTP, as mentioned before, the entry of some of the big investment banks to this market saw the volatility in price moderated to a great extent and this continued for some time until the launch of euro-based instruments. While interest in European sovereign futures contracts has waned significantly since Monetary Union, they still remain attractive hedging instruments for holders of domestic cash debt and so their treatment within the investment community has changed with time. Indeed, some contracts that were

created by futures exchanges to accommodate potential interest in various instruments failed to catch on and have been retired. Pre-EMU instruments still remain favoured, such as the German Bund contract, Schatz and Bobl.

Globalisation and better access to markets has seen technical analysis better encouraged. It is now a simple task for a European trader to look at prices in the USA and Far Eastern markets and to take positions with associated stop levels; the use of technical analysis is ideal there. Some markets rely on there being many different kinds of participants in order to function in a liquid state. Illiquid markets and assets are notoriously difficult to analyse at all, such as the Brady Bond market in Russian debt in the late 1990s. There is very little an analyst can do about that, except try to benchmark some of the more liquid instruments or to form a basket.

Analysts have to be aware of market conditions changing over time. It is not good enough to think that a particular instrument is still popular, despite decreasing volumes. This was effectively seen in the comparison between LIFFE German Bund, DTB/Eurex German Bund Future and the MATIF NNN contract. While before Monetary Union most of the volume in German contracts was at LIFFE and the NNN was the largest volume European-based futures contract, all this changed very quickly after Monetary Union. It had been expected that after Monetary Union, a euro-denominated French future could coexist with a euro-denominated German future, but this was not the case in reality and volumes in the NNN soon diminished as the Bund contract on EUREX gained popularity over that at LIFFE. The way these instruments were viewed within the markets also changed as the quality of underlying instruments in the Bund contract was viewed as greater than that of the NNN (and by extension to the smaller Spanish Obl and Italian BTP) and market participation was realigned accordingly. Exchange responses to this directional move have met with varied success: contracts based on 30-year government bonds have not set the investment world on fire and those that remain are seen as hedging rather than investment opportunities. Interestingly, this has coincided with the focus switch in the US, where the interest now lies with a ten-year Note and Note Future rather with the 30-year Bond and Bond Future. This switch has not meant a lack of investment opportunity; on the contrary, increased volumes have attracted further investors and individuals.

The switch from pit trading in most European markets to that of electronic has brought entry requirements and expenses down and it is now easier to access futures markets. This has seen the smaller investor take the place of what were called 'locals' in the old pit days. These were colourful characters in many ways and noticeable in pits by their red jackets. Their function was to absorb and create liquidity, which they did very well. Moving from the pit saw this function disappear somewhat as some exchanges moved to a 'matched bargain' system, which has the opposite effect to floor-based locals. However, with easier access to the exchanges

now, small or occasional traders can enter the marketplace, which gives back some of the function locals previously had.

Investors coming to the market for the first time cannot fail to notice that for every investor thinking the market is moving higher, there is another thinking the reverse. Naturally this is tied into the idea of an investment timeframe, but it is interesting to see how the forces of fear and greed operate in order to allow those who think the market is running out of steam and looks ready to reverse and by the mechanism to allow those who want to liquidate their position to do so. It would seem to the casual observer that not all information is available to all market participants at the same time. This is of course true to some extent but the headline news is available to all; it is the interpretation and inference of this information that sees different investors acting according to their desired needs.

Developments in charting software and access to real-time pricing information has made technical analysis easier and more manageable. Although there are still too many occurrences of price spikes and other problem data, in general the passage of time makes technical analysis and application across all asset classes easier. As long as there is a market in something, there will be technical analysis of it. Technical analysis used to be the preserve of equity markets, but developments over recent years has opened the field up to other assets and analysis of these has been very successful. My own field is yield and yield spread analysis and there have been excellent opportunities for profit in the fixed income markets. Some markets have come and gone, shining brightly and attracting many investors, only to see their popularity wane as access to the market became difficult or conditions changed, which meant that the instruments were no longer viable or traded. Popular markets are a joy to analyse as there are all the conditions necessary for a successful analysis: participation, liquidity and transparency. Once one or more of these conditions changes, the less appropriate technical analysis becomes, but there are always new asset classes to consider. The removal of many European currencies with the creation of the euro put an end to many trading opportunities, but the sheer size of the remaining euro currency market allows many opportunities for successful analysis. Markets will come and go. Many markets become regulated out of all opportunity, but there remain areas of outstanding application of technical analysis that the new adherent and the seasoned professional can access and be successful.

Fibonacci and Gann theory are two areas of technical analysis that suffer in current market conditions. The identification of key lows and highs is often very difficult and it is to these extremes of price that both are best suited. Although Fibonacci analysis can be applied to intermediate highs and lows, full confidence can only be gained from the historic high or low acting as the origin for the pattern. This is even more important in Gann analysis. However, with the caveats outlined in previous chapters of this book kept in mind, successful application of Fibonacci and indeed

Gann analysis, where conditions allow, can give excellent results. In addition, where the practitioner uses these techniques alongside other analysis tools, further understanding as to the behaviour of the market in current conditions can be gained. This is no small thing, as understanding the development of a price move is key to profit potential.

Small investors are key to market success. It is to these investors that trading and analysis training is of great importance. These are the heavy users of trading seminars and readers of periodicals and books such as these hope to draw attention to processes and techniques that they may find relevant and exciting. Many of these small investors are not 'professional' but see trading as slightly more than a hobby – a game of wits to pit their analysis and outlook against the Big Guns of the investment community. Undoubtedly some are very successful. Further participation should be encouraged from small investors and technical analysis education is one way of ensuring the small, enthusiastic investor approaches the practice of buying and selling with as many analysis tools as possible. It is not enough to read the tips from the Sunday newspapers and to wait until Monday morning to take a position. The great names of technical analysis in the last century knew that generally available tips (which we now call analysis) were not enough. By the time the ordinary investor read about an opportunity, the professionals had already been in the market and were driving prices. It has to be from independent study and continuous research that the small investor gains a foothold and it is my intention that this book addresses some of the knowledge gaps not only for professional technical analysts in the investment community but also for the enthusiastic small investor looking at screens from the potting shed.

Appendix 1
Data Problems

Problems in data streams. Rollover issues. Basket changes. Data rebasing.

In previous chapters the importance of clean data was mentioned and in this appendix I will suggest ways of getting around problem data, whether it is rollover of a futures contract, change to the basket of underlying physical instruments or a whole rebasing of a data set.

Technical analysts have seen improvements in their ability to analyse markets with the introduction of screen-based charting packages and access to almost every traded instrument and its relevant history. This has, however, opened up a raft of issues unknown to generations of analysts and traders before us – quality of data. In the past, technical analysts could rely on paper published data from various exchanges, such as the ISE Daily Official List and the Official Register in the UK and quality newspaper sections on Equity and Fixed Income and Commodity pricing. This is still the case as such price sources still exist, but to be honest there is very little call for confirmation of prices from these sources today. Analysts are notoriously lazy in the main when it comes to data quality and the easiest route out of a situation is usually taken, i.e. to manually change the price error locally. This is a nasty habit, which needs to be discouraged.

For my sins, some years ago I analysed the Russian Brady and Domestic bond market for an electronic information and analysis service to investors that my employer offered. This was a very strange market to analyse as it was dominated by only a few trading houses who could obviously have a disproportionate influence on market movement. This is something technical analysts have to take into account as it makes the market open to undue influence and technical analysis is best applied to markets with a much larger universe of participants as this allows

the depth of the market to develop. A deep market is key to clear price action and any constraint on this makes technical analysis more difficult. It is not impossible to complete an analysis as price moves are still price moves, despite there being few participants for that asset, but thin markets can lead to violent fluctuations in the price (or yield) that have no source in news or market activity, but are simply the result of large transactions carried out by one house on another. The hidden influence of intramarket action cannot be overlooked as 'true' buy/sell action is not taking place but is simply an agreement between houses agreeing to churn the stock for something as simple as accounting action. Analysts have to be careful when this happens and although the market may not be transparent, there are critical times in the year when churning is more prevalent, especially at end quarters and the year end.

However, the Brady market (bonds backed in US dollars rather than roubles) was a little thicker, with more investors. This added to the depth of the market and made it a little more 'technical', while the domestic currency bond market was still thin. However, in the late 1990s the threat of default on interest payments saw this market contract dramatically and technical analysis became harder and harder as access to valid traded prices rather than 'indicative' pricing was severely curtailed. Indeed, there were some weeks where bonds only showed an official close value rather than a traded price during any of the days. This made technical analysis very difficult to do and even switching from a daily bar to a line chart offered very little in the way of solution. There came a stage where it was impossible to complete technical analysis to a sufficiently good standard so this analysis offering had to stop, as the lack of price information signals the lack of interest in the market itself. Occasions such as this are few and far between, but analysts should take lessons from these events and maintain a close watch on the developments within the markets they are covering. Critically decreasing volumes are clear indications that something seriously wrong is happening in the marketplace.

Interestingly enough, when there were some improvements in the default situation, market participants did not return in sufficient numbers and were not even interested in the domestic Rouble bond market itself, as exposure to the Russian market transferred from Fixed Income to Equity, where volumes remain good and there is a wide range of market participation from not only domestic investors of also all kinds but international investors.

When markets show occurrences of indicative pricing only it is a very different situation from those markets where occasional trading gives daily price ranges that are very large. Although the interest exists in these markets themselves, being thin in nature the occasional trade may 'force' price action in violent ways. This offers difficult conditions for the analyst and the chart has to be looked at in a very different way from thicker markets where violent swings in price (or yield) are commonplace.

It is not just in markets where there are participation concerns that data streams can be of poor quality. Newly created markets such as with the launch of BTP futures on LIFFE and MATIF mentioned in previous chapters can give analysts a headache until there are sufficient price bars. In the case of 'mature' markets where new futures based on physical instruments are created, close approximations to the future contract can be created and offer a way out of these problems. In the case of new bond future contracts, looking at the yield history of some or all of the underlying physical bonds gives a good enough approximation at the start of life and indeed I have in the past created synthetic bond history using the yield history of the estimated 'Cheapest to Deliver' (CTD) as a good approximation of the future itself. As shown in previous chapters, a reasonable price can be derived from the yield according to the following formula:

$$(\text{Cash price}) - \text{basis} = (\text{futures price}) \times (\text{conversion factor})$$

(a)   where the cash price is the price of the physical underlying instrument;
(b)   the conversion factor is that fixed constant, as defined and set by the Exchange, which when applied to the synthetic futures interest stream equals that of the cash instrument in present value terms;
(c)   basis is the 'error' and changes throughout the life of the future but is deemed to be zero on the maturity date. See later in this appendix for a discussion on basis.

When using this formula to calculate the futures price, assume that the most recent basis value will remain constant throughout the past. Experience shows that this is not too bad an assumption to make.

Similar assumptions can be made in the case of weather futures, where HDD (heating degree days) and CDD (cooling degree days) can be worked out from available temperature published data. Indeed, synthetic HDD/CDD charts can be constructed using the Source City data and the degree gradient from that city to the local city as necessary.

In currencies, there are very few occasions where 'new' rates are needed, but recent developments in the political front in Europe have seen the creation of the euro currency for some member states of the European Union. An interesting exercise was carried out by a colleague in the run up to the launch of the euro currency. As there was no history for this currency whatsoever she decided to operate on the European Currency Unit (ECU), which had existed for many years. This was basically an 'accounting' currency as there were no notes or coins in major circulation. This was a synthetic currency made up of fixed weights of the (then) twelve member state currencies. It was known that some currencies making up the ECU would

not be included in the euro, such as the Danish krone and more importantly the British pound sterling. As the weights of each currency were also well known it was a simple algebraic task to take out these currencies and leave a fairly good approximation of what the euro would have looked like if it were comparable to the ECU. It was known well in advance that one ECU was going to convert at midnight on launch date to exactly one euro, so this made the task a little simpler. In the event, the calculated history for the 'euro' pre-launch date was successful enough to give euro currency analysts enough data to use for technical analysis. Other tests for creating a synthetic history, such as using the French franc and the German deutschemark on their own or paired, were not as successful. Analysts should test many options when creating synthetic history, and not only that but review the process once the actual asset begins to create daily data. This will give greater confidence in the created synthetic history.

There are other problems associated with electronic price feeds. These involve synthetic instruments, such as a benchmark bond or generic bonds with constant maturity. These tend to be instruments where investment managers can compare their holdings with other instruments. For example, a portfolio manager may hold an instrument which is close to a benchmark instrument but the manager's particular instrument may not be all that actively traded. Knowing the basis point differential between them can give a close enough valuation level. However, in the case of comparison to a benchmark and even more so to the comparison with a Constant Maturity instrument, some errors can develop.

BENCHMARK BOND INSTRUMENTS

These are bonds that are generally agreed within the marketplace to be key instruments within that market. For example, one particular ten-year German Bund is seen to be indicative of similarly dated instruments, not only German. However, as time progresses, this ten-year bond gets 'younger', i.e. becomes more like a nine-year bond and so on. Analysts have to decide when to change this for one that is closer to ten years to maturity, but may have several drawbacks. If there is a significant difference in the coupon, or it has a small amount outstanding, these may have a detrimental effect on the price, and hence yield of the potential new benchmark will be significantly different. There are examples throughout this book that show the dramatic changes that accepting a new benchmark can have, especially in those countries with discrete curves. There may be other issues, such as there not being an appropriate instrument available. This is often the case in Scandinavian countries, which have a 'discrete' yield curve rather than a 'continuous' one. By this I mean that domestic markets prefer to reissue bonds that already exist and add

to the amount outstanding. This is called 'tapping'. This is very different to markets with a 'continuous' yield curve such as the USA, Germany and the UK. Here governments will issue new instruments with appropriate coupons in preference to tapping older stocks, but may also tap stock into existing stocks as necessary. The demand from passive portfolio managers for access to benchmark stocks cannot be underestimated. In the late 1990s there was particular interest in Spanish ten-year bonds and this allowed the Kingdom of Spain to issue more than they had previously. Indeed, this was an excellent example of a government taking advantage of market conditions, as in the ten-year area the Kingdom issued bonds that were 10.5/11.0 years to maturity but which did not accrue daily interest until some months after issue. This meant that the Kingdom got access to the principal amount 'up front' and did not have to pay interest. This made yield calculation very difficult and comparison with more traditional bonds accruing interest from the issue date was problematical. Once the accrual date was passed then the Spanish bond behaved as normal.

Care and attention is needed when choosing a benchmark and this is particularly important where there are existing instruments, which have become youthful from longer dated maturities. A fine example of this occurs in the UK, where there are some Gilt stocks with very large coupons which were issued in times of extremes in inflation in the 1970s and the coupons attached to them had to be significantly higher than the rate of inflation in order for there to be a 'real' return for investors. There is a risk that one of these could become a benchmark instrument, as it gets younger. Instead of tapping a 13.5% stock the UK government will issue one with a much smaller coupon, probably nearer to the current base rate to remove this risk. The last thing that a bond issuer wants is for older bonds with high coupons to become popular, and it is in the best interest of the issuer, whether government, municipal or corporate, to issue bonds with as small a coupon as possible.

Other constraints are bonds with internal options, such as an early call date, sinking principals and conversion options. These are not ideal instruments to be used as benchmarks as there is an element of the price that is related to the perceived value of the embedded option within the instrument. Comparisons with other benchmarks are therefore not valid, as this is like comparing apples and oranges; the bonds are not the same if they have conversion options embedded, despite all other characteristics being the same as more traditional bonds. Many price sources prefer to change the benchmark as soon as there is a comparable benchmark with the time description needed (e.g. ten years to maturity) and omit to look at the amount outstanding. It is difficult to compare a bond with six billion outstanding with one that has only one billion, as there is an element of price paid which will reflect on the relative scarcity of the smaller bond. Choosing a benchmark

bond is very much a case of weighing up coupon, time to maturity and amount outstanding, which is a difficult balancing act, especially if there is a range of bonds that could effectively be chosen as the benchmark. It has been my experience that the amount outstanding and coupon have a greater weight in this equation, and results from sticking to these rules by far outweigh any issues resulting from the relative 'age' of the bond itself. The best example of this was in 1998 when there had to be a change to the UK ten-year gilt edged stock as the benchmark. There were two bonds that could have been used, T809 and T908 (using the convention of gilt naming; for a description of issuing and naming conventions see the Glossary). The T908 had been the Long Gilt benchmark in the 1980s and became the 15-year benchmark in the early 1990s, but it was not good enough in 1998 to be the ten-year benchmark as domestic yields were low in the UK at that time, as was the interest rate in the money market. Instead, a gilt with much less history but a coupon closer to the base rate at that time was chosen. Technical analysts of debt instruments have to be very aware of benchmark changes (see Figure A1.1) as even a small change in the yield of a new benchmark from the old one can send continuation charts and, more importantly, spread charts haywire and make technical analysis very difficult.

As many financial instruments and decisions are based on a benchmark bond and spread over other bonds, it is critical that traders and analysts are aware of rollover issues and do not take fright when they see a sharp move in the yield of

Figure A1.1

the bond, as can be the case currently. Traders are notoriously oblivious to market changes and are open to panic when the price source changes for a benchmark bond. Interestingly, 'constant maturity' benchmarks are also open to error. A constant maturity benchmark is the synthetic bond, and much more importantly its associated yield, which is created by linear interpolation from two 'real instruments' and takes account of the day (see Figure A1.2). Naturally it is better to have two instruments that are relatively close to each other and where there is no obvious kink in the yield curve in the area of calculation. This is critical as there are still often yield curves with 'humps' in the middle and this upsets the calculation. However, if there are calm conditions within the curve, the calculation is fairly simple.

The calculation assumes that the yield moves in a straight line from one bond value to the next. It is then easy to calculate how much the yield will move in the number of days from the younger bond until the synthetic one. Naturally this will change as either of the yields moves, so the benchmark has to be forever recalculated until it is replaced by the older one if required.

In the case of the futures market, problems of rollover are increased as there are even more influences on the price of the future itself. As many instruments are made up of a basket of physical goods, this basket could change in composition over time. Whether this is a basket of several sovereign bonds or of several delivery points for physical commodities, e.g. copper, altering the makeup of the underlying trend can have dramatic effect on the price of the future or the number of impurities in sugar within the standard being changed.

A good example of this is in the Bond futures market. Here the futures may be made up of a basket of five or more physical instruments, all roughly of the same
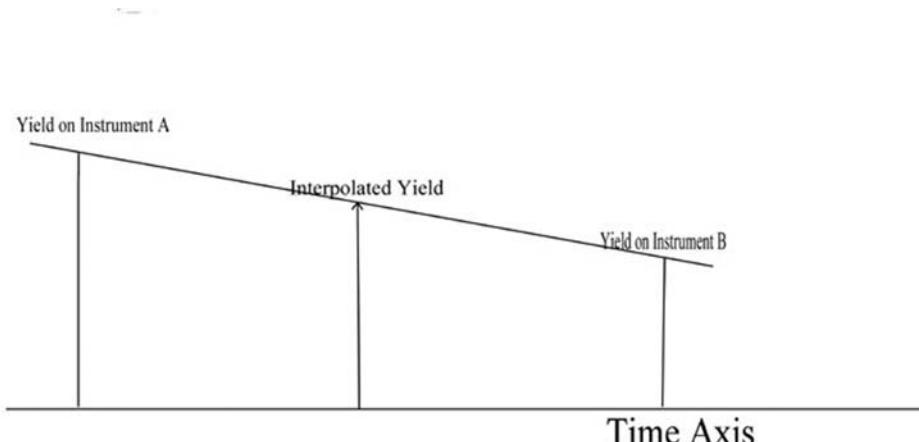
Figure A1.2

maturity. However, the next contract delivery month may see one or more of these fail to meet delivery conditions, perhaps by being too young, and this will affect the price of the future, or by going XD (Ex Dividend). As we know that

$$\text{Futures price} = \frac{\text{cash price} - \text{basis}}{\text{conversion factor}}$$

the future contract price may change as a result.

Basket changes are the commonest reason for sharp moves in price during the rollover period. Additional issues are situations where one of the basket instruments cannot be delivered. This was often the case in the LIFFE Long Gilt futures where during the year one or more of the basket gilts would go XD; this meant that it was not viable for delivery. This problem was compounded by the Long Gilt having a big delivery window of a month and also that the Gilts themselves paid out semi-annually. In the case of the German Bund futures, problems resulted from having instruments of poorer quality than normal within the basket. This happened since some debt was issued from the Unified German Government to cover improvements and industries in the old East. Although these instruments were backed by German Federal Government guarantee, they were seen as being of slightly less quality than the traditional Bunds issued by the West German Government in pre-unification times. Some of these instruments had huge amounts outstanding and the inclusion of these (Treuhands) in the basket made the futures price skew a little. However, as these matured, issues such as these no longer occur. Technical analysts have to be aware of changes to the conditions of the basket whenever analysis of a futures market is required. Subtle changes to the quantity (of amount outstanding), quality (of the possible delivery assets) and delivery conditions (time, place or mechanism) can make a significant contribution to the reflected price of the future.

When it comes to looking at price moves in an Index, further critical analysis of the underlying index or groups of indices is needed. Although many of the major indices throughout the world do not change significantly, analysts have to be aware of occasions when one of the components of the underlying index falls out and is replaced by another component. This is most marked in Equity Index futures, which reflect not only the underlying equity index but also the estimated dividend yield from now until the maturity date. Major changes to an equity index are fairly uncommon but the fever of mergers and acquisitions in the recent past gave index compilers some headaches. One notable case in point is of one of the components of the UK FTSE-100 Index, which had a large Investment Trust as one of the components. This was the Globe Investment Trust and, being one of the largest trusts in that sector, reflected the general moves of the sector. However, this particular trust

suffered from having too few holders and eventually the total issued stock in the trust was bought out by one of the larger holders, British Coal Pension Fund. This caused the shares to be delisted and, by that purchase, move out of the FTSE-100 Index itself.

As mentioned in previous chapters, some instruments go through such great changes that the whole previous history has to be rebased in order to show a 'real' price history. This may come about from a change in the synthetic coupon in a Bond future, stock split or rights issue in equity markets, change in size of deliverable in the case of commodity markets and so on. While most of these rebasing exercises are carried out by a relevant exchange or data provider, on some occasions the analyst has to carry out these rebasing exercises. Although there are some philosophical considerations for the technical analyst, these rebasing exercises are fairly mundane procedures. However, it has to be remembered that for Gann analysis where there are key historical highs and lows, especially where the lifetime high and low are used in calculations, alteration of these prices will alter the 'official' origin and extreme of any Gann calculation. This is especially critical where Gann fanlines and Gann eight's charts are involved. Even after a rebasing exercise, or indeed when analysts are using a synthetic price history, important Gann levels have to be maintained. 'Traded' prices are much more important than those created by a rebasing exercise. When the notional coupon on the Long Gilt future contract at LIFFE was changed in the late 1990s the exchange provided historical prices in a rebased format, but it was interesting to see that on subsequent price bull moves approaching the historical high in the un-rebased time series, the 'new' contract behaved as if this was relevant. Indeed, it was when the market 'remembered' that the contract struggled to reach this historical zone before the new coupon was issued and treated these levels with caution. It was noted that key resistance levels on the rebased series gave very little in the way of resistance as the rally developed, so the market was indeed 'remembering' previous price action and behaviour. This was a salutary lesson to technical analysts.

Personally I prefer to keep the extremes of the lifetime high and low on the new chart by having a horizontal line rather than a bar, for, despite the change in the price history, I have been made aware that the historical high or low or both remains as 'critical' market knowledge, and so becomes part of the folklore of that particular market. It is not uncommon to have a non-technical analyst ask when a particular instrument was at such-and-such level in the past. In reply a technical analyst has to give the non-rebased level as this was a real traded level and not synthetic. Market conditions may change during an analyst's working lifetime, but current pricing and position relative to key levels remains the same. This can be invaluable additional evidence for future price or yield moves.

THE BASIS IN FUTURES ANALYSIS

Although there is a direct connection between the basis and futures price, the basis does influence the price to some extent, especially when approaching the maturity of the futures contract. Remembering the formula

$$(\text{Cash price}) - \text{basis} = (\text{futures price}) \times (\text{conversion factor})$$

basis theory states that at the maturity date the basis (or error) has to be exactly zero for the CTD. The CTD is the physical commodity that will be delivered to holders of the futures contract if they have not chosen a cash delivery or reversed their holdings or rolled forward to the next contract delivery month.

During the life of the future, the basis may fluctuate violently. Some analysts prefer to look at the price action of the CTD throughout the life of the futures. However, in cases where it is difficult to forecast the CTD accurately, that is where more than one instrument could be delivered on the futures Maturity Date, the behaviour of the basis is critical. Not all markets have the clearly identified CTD, as was the case in the MATIF NNN throughout the 1990s, where although there were three or more instruments within the basket of deliverables, only one had a clear advantage as the basis of the CDT was less than 10 while the others were greater than 30 for the life of the instrument, year after year. This made the NNN an interesting if simpler instrument to analyse. During that period, the UK Long Gilt futures with all its peculiarities may have had underlying Gilts, which had a small basis but may not have been deliverable due to XD issues.

Charting of the basis was simple for most of the life of the futures, but when approaching maturity all potential deliverables had to have their associated basis charted as it was often difficult to forecast which instrument was going to be delivered. The difficulty arises when in the last few days of life, traders see that there is a strong argument for one particular basket member to be delivered. Anticipating a strong demand for this on the day of maturity, a trader may buy this instrument in the hope of the price rising significantly, as it is needed to fulfil delivery obligations on maturity day. This demand for the physical asset will have an effect on the price of it (it will go up) and thus the basis relative to the futures contract will change. Indeed, in cases where there are several candidates for potential delivery, buying one could have the effect of making it no longer likely to be delivered. This is a difficult situation to be in for, if purchased but not required for delivery, the price may not go up as demand is very low relative to the actual asset that is being delivered.

Data issues are part and parcel of the daily grind for the technical analyst. Intraday technical analysts are particularly open to being hit with incorrect prices, spikes or indeed dull hours. Data providers have improved their methods for catching such

rogue prices and many can change these, even at the local level (the analyst), without the analyst even noticing that something has changed. This is a great advance and leaves analysts free to do what they are paid for – comprehensive, accurate charting resulting in good-quality calls on the market next move. Still, improvements are always necessary.

PROBLEMS WITH DATA CROSS-MARKET ANALYSIS

The main issue here is how to treat markets that have local holidays. This is particularly important in fixed income markets where regional or religious holidays take place in one country and not in another. While it would be wrong to disregard trading from countries not on holiday, it is equally wrong to assume that the closed market can have a proxy price or yield applied. In my experience, maintaining localised country databases of history is invaluable and leaves out days when holidays are due. For cross-market studies, such as yield spreads, I keep a separate database, which does not operate and have entries if more than one of the major constituents has not traded that day, such as Germany or France in my cross-Europe benchmark yield database. The smaller countries may still trade on those days but volumes tend to be minute in comparison with days when France and Germany are active, so price action would be inconclusive if these were included alone. There are arguments for keeping the database open despite local holidays, but I have yet to be convinced that it is accurate and acceptable to transpose a previous session yield on to a day when a market experiences a local or national holiday. I would prefer to keep the database closed and only enter information when there is active trading in the component parts. Readers may differ on this point so I can only draw their attention to the method and suggest that they try it.

Appendix 2
Glossary of Common Terms

TERM AND MEANING

Basis   The 'error' price resulting from futures and cash price comparison. Will be zero at delivery

Basket   A collection as decided by the exchange of physical instruments meeting quality and standard for delivery to a futures contract. Not all futures have a basket

Bobl   Shorthand for Bundesobligationen, a five-year German government bond or futures contract with a basket of Bundesobligationen and five-year Bundesanleihen

Bond   A fixed income instrument, usually paying periodic interest and principal (face value) at maturity

Bond futures   A futures contract based on a basket of bonds, usually government bonds

BTP   Buono del Tesoro Poliennale, Italian long-term debt instrument

Bullish/bearish outside day   A key day in a bar chart

Bund   Usually shorthand for a German ten-year maturing futures contract, but can be any German bond (Bundesanleihen) or futures with maturity exceeding five years

CABLE   Traditional description of the USD–GBP exchange rate in Forex analysis. Derived from the PLUTO (pipe line under the ocean) ability to see price action in both countries in the late Victorian era

Call date   That date in the future where an internal change to the bond will take place. This could be early redemption or conversion or partial redemption of the face value

Call date (early)   A date in the future life of a fixed income stock, where, subject to some constraints such as price reaching a preset level, the instrument will mature. Some or all of the issued amount may be forced into redemption

CD   Cum Dividend, the period when a financial instrument will be bought/sold with dividend rights, cf. XD

CD   Certificate of Deposit, a fixed income instrument

Channel   A technical pattern

Conversion factor   A fixed constant which when applied to a futures price results in the cash price. Exchange derived

Conversion option in a fixed income stock   The option of the seller to redeem some or all of a bond issue at a fixed and pre-known date in the future for some other fixed income stock or, less likely, equity

Delivery month   Month when a futures contract matures

DTB   Deutsche Terminborse (old German futures exchange based in Frankfurt, superseded by EUREX)

ECB   European Central Bank

EUR   Usual letter code for euros in Forex analysis

EUREX   An electronic financial futures and options exchange platform, mainly European based

Eurotop 100   The weighted index of top 100 equities in Europe

Flag   Continuation pattern

FTSE-100/FTSE-100 futures   The benchmark index for the top 100 equities in the UK/futures contract based on the FTSE-100 Index

GBP   Usual letter code for GB pounds sterling in Forex analysis

Gilt   A UK government bond of any maturity

H, M, U, Z   Four quarterly delivery month codes for many futures contracts. Corresponds with March, June, September and December

Head and Shoulders   Reversal pattern

IFTA   International Federation of Technical Analysts

Imperial paper   Graph/charting paper with one box having four smaller boxes

Interest rate futures   A contract whose underlying is an interest rate, usually LIBOR at the time of maturity

JGB/JGB futures   Japanese Government bond/futures whose underlying is a 10Y Japanese Government Bond

JPY   Usual letter code for Japanese yen in Forex analysis

LIBOR   London interbank offered rate

LIFFE   London International Financial Futures Exchange (also known as London International Financial Futures and Options Exchange)

Long Gilt   The LIFFE futures contract based on 10Y UK government bonds

MATIF   Marché à Terme International de France, the French futures and options exchange now part of Euronext

Metric paper   Graph/charting paper with one box having ten smaller boxes

Month code   Single-letter code for identification of a futures contract delivery month, e.g. G_U4 is Long Gilt for September 2004 delivery

Outside day   Where current price action has a higher high and a lower low than the previous bar

Pennant   Continuation pattern

Redemption   When the issuer of a fixed income bond pays out the face value of that instrument

Schatz   Shorthand for Bundesschatzanweisungen, a two-year German Federal Treasury Note. In addition, German Federal Debt Obligations (Bundesobligationen) and German Federal Bonds (Bundesanleihen) are included in the Schatz futures contract if they are young enough

Sinking principal   Where the face value of a fixed income bond is redeemed in part, usually at the same time as a coupon payment

STA   The Society of Technical Analysts Ltd. UK based

STIR   Short-term interest rate futures

T-Bond/T-Bond futures   Shorthand for US Treasury 30-Year bond/futures whose underlying is a US Treasury 30-year Government Bond

Teletext   UK domestic television news and information service, e.g. BBC Ceefax

T-Note/T-Note Futures   Shorthand for US Treasury ten-year note/futures whose underlying base is a US Treasury ten-year Government Bond or Note

Trendline   Line joining a succession of lows or highs to gauge the initial move

Triangle   Usually but not always a continuation pattern

Underlying   The physical commodity or financial instrument paid out on maturity of a futures contract

USD   Usual letter code for US dollars in Forex analysis

Wedge   A technical pattern

XD   Ex Delivery, the period when a financial instrument will be bought/sold without dividend rights, c.f. CD

Futures delivery month single-letter codes:

- F   January
- G   February
- H   March
- J   April
- K   May
- M   June
- N   July
- Q   August
- U   September

V   October

X   November

Z   December

ISSUING AND NAMING CONVENTIONS WITHIN THE UK GILT EDGED MARKET

This section is for historical note, as many of the old conventions in naming Gilt Edged Stock in the UK are under review. However, for students of Fixed Income who are interested in the development of the market from a historical perspective, many older books exist where the naming convention was assumed to be well known by readers at that time.

As in all fixed income markets, the UK government issued and still issues bonds to finance central and local government cash needs. In times of war, bonds were also issued to pay for military campaigns. Some bonds still exist, which have been issued in the latter case.

Traditionally, both the Treasury and the Exchequer of the UK government issued fixed income bonds. These were identified by a single letter code at the start of the 'name', either a 'T' or an 'E'. Other bonds could be issued by either department which may have conversion options within them. These were identified by 'C'. Other fixed income instruments, such as the 'War Loan' and 'Consolidation' bonds will be looked at later. Now only the Treasury issues fixed income bonds.

An example of the naming convention is seen below:

T908   Treasury 9% Gilt Edged Stock, 2009, which pays 9% semi-annually until 2009

T6T04   Treasury 6.75% Gilt Edged Stock, 2004, which pays 6.75% semi-annually until 2004

T6Q10   Treasury 6.25% Gilt Edged Stock, 2010, which pays 6.25% semi-annually until 2010

T7H06   Treasury 7.5% Gilt Edged Stock, 2006, which pays 7.5% semi-annually until 2006

E1213/17   Exchequer 12% Stock, double dated 2013–2017, which pays 12% semi-annually until 2013 and may be called at any time after that date

Note that the second letter describes the decimal part of the coupon, Q = quarter, H = half and T = three-quarters.

There are other Gilts that are of historic interest, such as 2.5% Annuities, which were issued in 1853 in the days where an annuity could be bought from the Bank of

England, 3.5% War Loans from 1932 and my own personal favourite Consolidated 2.5%, which has a long history from 1888 in this form but is indeed older. Interestingly, some of these Gilts pay interest gross of taxation and some pay quarterly. This was to encourage small savers in the past to invest in the market and especially in times of national need.

CONSOLIDATED FUND (CONSOLIDATED BONDS)

The UK has a very old market in fixed income stock. The consolidated fund from time to time sweeps up some very small bonds with minute amounts outstanding into a single bond. This is the case with Consols 2.5% which has not only aggregated several ancient Gilts together but has had the coupon changed several times since the original issue. Indeed, it is not so long ago that there were instruments in the UK that had been issued during the Napoleonic War, and Consols 2.5% has swept up some of these. These stocks are 'irredeemable', i.e. they do not have an estimated final payment date. It is easier and cheaper for the UK government to pay out 2.5% in interest each year to the holders rather than to redeem these stocks at face value. Long may they continue.

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