BETTING TO WIN

A PROFESSIONAL GUIDE TO PROFITABLE BETTING

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To Mum and Dad and my wife Julie

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To Profitable Betting

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HIGH STAKES

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Introduction

IF EVER THERE WAS A GOLDEN AGE of betting, this is it. The choice is extraordinary, the opportunities are bountiful, and at last the betting man or woman has a real chance of earning money at the same time as enjoying the thrill of the chase.

In such an environment, there is a clear need for a book which is able to act as a guide through this choice, and through the opportunities on offer.

My research career, which has focused on the study of betting and financial markets, pre-dates this Golden Age, to a time when the identification of profitable betting strategies was so much more difficult. This served to ensure, of course, that the cutting edge of the analysis was sharpened all the more effectively. The tools that have resulted are based on an extensive study of the most rigorously reviewed literature from across the world, and through original work of mine that has been published at the forefront of the international academic literature. These tools are all the more valuable when applied to today's punter-friendly betting environment.

I was approached to write this book to mark this Golden Age of betting. My remit was to provide a clear and accessible guide, based on the most rigorous analysis available anywhere.

Betting has always been fun, but it has not always been profitable. Times have changed, and this book is my contribution to the new times. I hope you enjoy reading it as much as I have enjoyed writing it – and, most of all, I hope that it helps turn a pleasant hobby into a profitable investment. Let battle commence!

Part One: Betting With The Bookmaker

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Chapter 1: Fair And Unfair Odds

THE ESSENTIAL IDEA behind bookmaking is a very simple one, and the example of setting odds about the outcome of a coin toss will serve to explain it.

Clearly the outcome of a normal coin toss is restricted to two possibilities, i.e. 'heads' or 'tails'. If it is a fair coin, there is a 50 per cent chance of heads and a 50 per cent chance of tails. This means about a half of all coins will end up heads and a half tails. Moreover, the more coins we toss, the closer we get to the even split predicted by theory.

If you are a bookmaker, and you are only interested in breaking even, you will offer to match the punter's stake if he calls correctly, but keep his stake if he calls wrongly.

For example, if the punter calls 'heads', and stakes £10, you will take the £10 and wait for the coin toss. If it lands on 'heads', the punter wins, and so you match the £10 stake, and return the original stake. This is known as giving odds of 'even money' or 'evens'. If it lands on tails, however, the punter loses, and you keep the £10 stake.

This way, by offering 'evens', the bookmaker wins £10 every time the punter is wrong, and loses £10 every time the punter is right. On average the punter is right half the time and wrong half the time, so the bookmaker can expect to win £10 and lose £10 on an equal number of occasions.

The offer of 'evens' about a coin toss, or any other event with a 50-50 chance of occurring, is known as an offer of 'fair odds'.

Take now the case of dice. What is the chance that a single die, if thrown, will show a six? Clearly the answer is 1 in 6. What is the chance that it will show a four? Again, the answer is 1 in 6. The reason is that there are six possible outcomes, a 1,2,3,4,5 or 6, and they all have an equal chance of coming up.

Before throwing the die, therefore, the fair odds about calling the correct number is 5 to 1. This means that the bookmaker should pay the punter 5 times his stake (as well as returning the stake) if the call is correct, but keep the stake if the call is wrong.

This way, the bookmaker wins £10 every time the punter is wrong, and loses £50 every time the punter is right. On average, the punter

is right one time in six, and so out of six throws, the bookmaker can expect to win £10 on five occasions (a total of £50) and to lose £50 on one occasion. In other words, in the long run, the bookmaker can expect to break even, as can the punter.

So much for fair odds! The bookmaker's purpose, however, is to make a profit, and that means offering less than fair odds.

Take again the case of the coin toss. The bookmaker who wishes to make a long-term profit might offer, say, 4 to 5 about the coin turning up 'heads' and 4 to 5 about it turning up 'tails'.

This means that the bookmaker will pay out £4 if the punter calls correctly, but keep £5 if the punter calls wrongly. Since the punter will call correctly only half the time, on average the bookmaker wins £5 half the time, and loses £4 half the time. Clearly, at these odds, the bookmaker wins in the long run.

To summarise, if the odds set by the bookmaker are fair, the bookmaker and the punter will break even in the long run. If the odds are less than fair, the bookmaker will win, and the punter will lose, in the long run.

Now it would seem foolish to bet on the toss of a coin at less than fair odds (evens), unless you enjoy the game, or unless you know something you shouldn't about the coin. The same applies to the dice game.

Of course, it is possible to win in the short run, even at less than fair odds, by sheer luck. There is nothing, for example, to prevent a call of heads winning ten or twenty times in a row. This way of thinking is not recommended, however, for those looking to a long-term betting strategy that will win money.

What's Fair?

In the case of the coin toss, or the dice game, it is easy (unless the game is bent) to calculate what the fair odds should be. On this basis, it is straightforward to decide whether a bet at any given odds is likely to yield a long-term profit, loss, or a break-even position.

What constitutes fair odds about a horse winning, or a dog, or a football team, is altogether more difficult to identify, and two different judges may come up with totally different answers. It is this difference of opinion that has always allowed the betting public to live in the hope that they can beat the bookie. The problem, of course,

is that the bookmakers tend to get the odds right more often than the punter, and, besides, bookmakers are able to offer a set of odds which taken as a whole are designed in their favour. This margin in their favour, or 'over-round', tends to be particularly large where the bettor has a relatively large number of alternatives to choose from, such as a 20-runner field in a horse race. In addition there has until recently been the crippling effect of betting tax deductions.

The Golden Age of betting that we are presently experiencing has brought with it changes in all these factors. First, the quantity and quality of information available to bettors is now so plentiful that, if used properly, it can be used to significant effect in countering the advantage that the bookmaker has historically possessed in the setting of odds, and particularly so where information is changing rapidly. Second, the number of different bookmakers is now so enormous that the bettor is able to shop around for odds in such a way that at best odds the effective margin is wiped out, or even turned to the advantage of the bettor. Finally, the switch from a turnover tax to a tax on the gross profits of bookmakers, and the simultaneous reduction in the burden of taxation on bookmakers, has led to the present era of deduction-free betting.

The battle between bettor and bookmaker is at last set on something approaching a level playing field. Indeed, in many ways the pitch is tilted to the advantage of the bettor. It is a battle that really can be won.

The Way To Bet With The Bookmaker

The first thing to remember in the battle with the bookmaker is that there are many of them, but only one of you. Properly played, that advantage can prove decisive.

The first thing we shall do in this chapter, therefore, is to highlight the number of bookmakers populating the market, and how best value can be obtained by taking full advantage of the choice on offer.

First, take note of the so-called 'Big Three', which has traditionally been made up of betting shops operated by Ladbrokes, William Hill and Coral, and arguably a 'Big Four', which includes Tote bookmakers.

These bookmakers currently operate in four distinct sectors: off-

course betting at licensed outlets (the biggest share of the market), on-course betting (betting at the racetrack), betting by telephone (through deposit or credit accounts, or via credit or debit cards), and betting via the Internet.

Bookmakers operate, especially on-course, by offering odds which are fixed when the bet is struck. In this case, it doesn't matter when the event takes place, the bet will be settled at the odds in place when the bet was agreed. If, for example, you bet on a horse at the track to win at 6 to 1, you will be paid out at this price regardless of whether the odds offered by the same or any other bookmaker get bigger or smaller. In other words, you are able to lock in a price. This is usually known as *taking a price* or *taking the board price*, the latter term deriving from the historic practice of chalking up the price on boards. This facility is also available off-course, in betting shops, by telephone and on the Internet. A growing number of bookmakers also offer their own set of *early prices* in the hours before a race, or at least before the on-course market opens. The on-course market for horse racing usually extends for about ten to twenty minutes before the start of the race.

Despite the availability of this option, most bets placed in betting shops on horse or greyhound racing are struck at what is known as the *starting price* (SP). The precise method of determining the starting price has changed following recent reforms, but basically the starting price represents the odds which independent assessors at the racetrack determine are generally available from bookmakers at the start of a race.

The starting price about most horses is, on average, as long as it will ever have been during the on-course market. This is because bookmakers are naturally very cautious when they display odds for the first time. It is only when they are able to gauge the relative support for different horses that they will start to offer better odds so as to attract customers. The starting price will also usually be longer than the typical 'early price' offered by any given bookmaker about a horse.

There is one exception, however, and it is an important one. Horses that go on to win tend to attract significant support from clued-up bettors before the start of the race. For this reason, the starting price about these horses is often shorter than prices that

could have been taken earlier. The problem, of course, is that unless you know in advance which horse is going to win, you will lose out in the long run by grabbing the earlier odds.

Finally, there is no convincing evidence that the last board price available before the start of the race is significantly better or worse than the officially returned starting price.

In addition to board prices or early prices, most bookmakers also offer *ante-post* prices, which are odds laid before the day of the race or the event. These prices will often be more generous than the subsequent early price about the same selection or the sequence of board prices or the starting price. There is a critical disadvantage in taking an ante-post price, however, in that if your selection withdraws, for whatever reason, after the bet is struck, you will in most circumstances lose your stake.

If you take an early price or a board price on a horse, however, and it subsequently withdraws (technically, does not come under starter's orders), your stake is returned. This sometimes happens after an early price has been taken, or in the case of the starting price so late that bookmakers are unable to compile a fresh set of odds to allow for this. To compensate, bookmakers deduct some of the payout to the winning bets. This so-called 'Rule 4' deduction is calculated on the basis of the odds prevailing about the withdrawn horse at the time it was withdrawn.

In addition to straight win bets, there are also a wide range of other bets available, of which 'each way' bets lead the way. These allow the bettor to nominate a horse either to win or be placed (usually, but not always, in the first three). There are also multiple bets on cumulative outcomes and forecast bets such as the Computer Straight Forecast and Tricast, which involve nomination of the first two or three past the post in the correct order.

Each Way Bets

In each way betting, you bet on your selection to win or to be placed. For example, instead of betting £20 to win, you bet £10 each way, i.e. £10 to win and £10 to be placed.

The definition of a place differs depending on the event and the number of entrants, but usually it means to be placed in the

first three. In horse racing, this is strictly defined. In a race of five, six or seven runners, a place means finishing in the first two; in races of eight or more runners it usually means to finish in the first three, or the first four in handicaps of sixteen or more runners. Sometime bookmakers offer more generous terms, including a place for the first five home in some high-profile handicaps. For the record, handicap races are races where the horses carry different weights, depending on their ability, in order to make the race more competitive.

The usual place terms are shown below:

5 to 7 runners: 1/4 odds	– 1st or 2nd	– all races
8 or more: 1/5 odds	– 1st, 2nd or 3rd	– all non-handicaps
8 to 11 runners: 1/5 odds	– 1st, 2nd or 3rd	– all races
12 to 15 runners: 1/4 odds	– 1st, 2nd or 3rd	– handicaps only
16 or more runners: 1/4 odds	– 1st, 2nd, 3rd or 4th	– handicaps only

It is also possible to make a win and place bet, which means staking to win a greater amount than to place. Bookmakers will not normally accept a bet just to place, however, or to place for a greater stake than to win.

Is Each Way Betting Good Value?

The simplest way to consider the relative value of a win bet compared to an each way bet is to take a simple example.

The example is of a six-horse race, in which all the horses are judged to be equally good, and the bookmaker takes no margin. This is an unlikely case, of course, but it serves to illustrate the principle very well, and the same logic applies to cases of unequally matched horses, and/or where the bookmaker builds a fat margin into the odds.

In this mythical six-horse race, the fair bookie offers odds of 5 to 1 about each equally matched horse. You could in this case place £20 on each of the six horses to win, at 5 to 1, amounting to a total stake of £120.

Whichever horse wins, your return would be 5 x £20 (since you have staked £20 at 5 to 1), plus your stake returned, i.e. £120.

You and the bookmaker break even.

Assume now that instead of betting £20 on each horse, you bet £10 each way on each (i.e. a total of £20 per horse). This is made up of £10 to win and £10 to place on each horse. Again your total stake is £120.

However, only one horse will win, say Horse A, and another will finish second, say Horse B.

The return to the winning horse is calculated as follows:

£10 to win on Horse A at 5 to 1 = 5 × £10 plus £10 stake returned = £60.

A winning horse is also considered to be placed (1st is a place as well as a win).

The £10 to place on Horse A yields 1/4 of the odds of 5 to 1, plus the stake returned, i.e.

1/4 x 5 × £10 plus £10 stake returned = £12.50 + £10 = £22.50.

The £10 to win on Horse B is clearly lost.

However, the £10 to place on Horse B yields the same as for Horse A, i.e. £22.50 (since the odds are the same).

So the total return to your total stake of £120 (£60 each way) is:

£60 + £22.50 + £22.50 = £105.

You have, therefore, staked £120 to ensure a return of £105.

To summarise

£20 to win at 5 to 1 on six horses costs £120.

Return whichever horse wins = £120.

£10 each way at 5 to 1 on six horses costs £120.

At place odds of a quarter of the win odds, a £10 each way bet on each horse yields the following:

Total cost = 6 × £20 = £120.

Return on winning horse = win return + place return.

Win return = £10 at 5 to 1 plus stake returned = £60.

Place return = £10 at 0.25 (5 to 1) plus stake returned = (1.25 × £10) + £10 = £22.50.

Return on second-placed horse = win return + place return.
Win return = 0.
Place return = £10 at 0.25 (5 to 1) plus stake returned = (1.25 × £10) + £10 = £22.50.
Total return to each way backers = £105.
Compared to the win bet, where you broke even, this time you have lost £15.

What Are Fair Place Odds?

For the win bet and the each way bet to represent equal value, the place odds would in this example need to have been about two-fifths rather than a quarter of the win odds.
This can be demonstrated as follows:
£20 to win at 5 to 1 on six horses costs £120.
Return whichever horse wins = £120.
£10 each way at 5 to 1 on six horses costs £120.
At place odds of 0.4 of the win odds, a £10 each way bet on each horse yields the following:
Total cost = 6 × £20 = £120.
Return on winning horse = win return + place return.
Win return = £10 at 5 to 1 plus stake returned = £60.
Place return = £10 at 0.4 (5 to 1) plus stake returned = (2.0 × £10) + £10 = £30.
Return on second-placed horse = win return + place return.
Win return = 0.
Place return = £10 at 0.4 (5 to 1) plus stake returned = (2.0 × £10) + £10 = £30.
Total return to each way backers = £120.
In other words, for each way odds to represent the same value as win odds, the place part of the bet should be calculated as 0.4 times the win odds.
In actual fact, the place odds in this example are calculated as a quarter (0.25) times the win odds.
In the case of six-horse races at current place odds, therefore, win bets would seem to represent better value than their each way equivalents.
For each level of win odds, the following table shows what fraction of the win odds the place odds should be in a fair book, and what

fraction they actually are. Win bets only are accepted if there are fewer than five runners.

Handicaps

Runners	Fair place fraction	Actual place fraction	No. placed
5	0.38	0.25	2
6	0.40	0.25	2
7	0.42	0.25	2
8	0.24	0.20	3
10	0.26	0.20	3
12	0.27	0.25	3
14	0.28	0.25	3
16	0.20	0.25	4
20	0.21	0.25	4

Non-handicaps

Runners	Fair place fraction	Actual place fraction	No. placed
5	0.38	0.25	2
6	0.40	0.25	2
7	0.42	0.25	2
8	0.24	0.20	3
10	0.26	0.20	3
12	0.27	0.20	3
14	0.28	0.20	3
16	0.29	0.20	3
20	0.30	0.20	3

According to this analysis, place odds (and therefore each way bets) represent worse value than a straight win bet in all cases except handicap races of 16 or more runners.

Even so, there may be occasional cases where you have good reason for believing that a horse is disproportionately likely to be placed, but is very unlikely to win, and that the each way bet may therefore represent value. These are exceptions to the general rule,

however, and should in each case be carefully considered on their individual merits.

Multiple Bets

There exist a range of multiple bets, i.e. bets that yield a return if more than one part of the bet comes up. The simplest is a win double. In a win double, the bettor chooses two selections. To win, both of the selections must be successful. If both horses win, the odds are multiplied. If either loses, the bet is lost.

Example

You select Horse A to win the first race on the card at 2 to 1. You select Horse B to win the second race on the card, at 10 to 1. You now ask for a £10 win double on these two horses.

The double is calculated like this. Your £10 stake goes first on to Horse A. If it wins, your return is £30 (2 times £10 plus your stake returned). That £30 is then placed on Horse B. If Horse B wins, your return is £330 (£30 at 10 to 1 yields £300, plus your £30 stake returned).

All multiple bets follow this principle.

A common alternative to the win double is the win treble. These operate exactly like doubles, except that there are three selections instead of two. Accumulators can be constructed in the same manner, built up of four or more selections.

To calculate your return, convert the odds on offer into decimal notation, if they are not shown that way to start with. To do this, add one to the traditional (or fractional) odds. For instance, odds of 2 to 1 are represented in decimal notation as odds of 3.0. Odds of 7 to 2 (3.5 to 1) are represented, in decimal notation, as odds of 4.5.

Now multiply these decimal odds together.

So, if you have three selections at 2 to 1, 3 to 1 and 4 to 1, these are converted into their decimal equivalents of 3.0, 4.0 and 5.0. If they all win the return is calculated by multiplying these odds together, i.e. 3 x 4 x 5 = 60.0.

On this basis, a £20 win treble, for example, at the odds shown above would yield a return of 60 × £20.00, i.e. £1200.

There are numerous multiple bets, usually with strange names, which simply combine a number of different multiple bets. For example, if you make five selections, these can be combined into

doubles, trebles, four-selection accumulators, and five-selection accumulators. This is obviously rather more costly for a given unit stake, but the advantage is that you will get some return if only some of your selections win. Bookmakers often offer incentives to punters to make these sorts of wagers, usually by offering a bonus payout to winning bets.

Some common examples of this type of multiple bets are as follows:

Trixie	three selections, four bets (three doubles, one treble)
Patent	three selections, seven bets (three singles, three doubles, one treble)
Yankee	four selections, eleven bets (six doubles, four trebles, one fourfold)
Lucky 15	four selections, 15 bets (four singles, six doubles, four trebles, one fourfold).
Canadian	five selections, 26 bets (ten doubles, ten trebles, five fourfolds, one fivefold)
Lucky 31	five selections, 31 bets (five singles, ten doubles, ten trebles, five fourfolds, one fivefold)
Heinz	six selections, 57 bets (fifteen doubles, twenty trebles, fifteen fourfolds, six fivefolds, one sevenfold)
Lucky 63	six selections, 63 bets (six singles, fifteen doubles, twenty trebles, fifteen fourfolds, six fivefolds, one sevenfold).
Super Heinz	seven selections, 120 bets (21 doubles, 35 trebles, 35 fourfolds, 21 fivefolds, 7 sixfolds and one sevenfold).
Goliath	eight selections, 247 bets, 28 doubles, 56 trebles, 70 fourfolds, 56 fivefolds, 28 sixfolds, eight sevenfolds, one eightfold.

In addition to win multiples, bettors can also stake each way multiples. Each part of the selection is then treated as an each way bet. Since the each way bet is made up of a bet to win and a bet to place, naturally the number of bets is doubled when placing the each way equivalent of each of the above.

When betting tax was levied on the stake, the advantage of the multiple bet option was that the same tax was levied on a multiple of a given stake, say £10, as on a single of the same stake. The potential winnings were higher, therefore, for the same tax.

Since the abolition of betting deductions, there is no advantage

to be gained from placing a double on two horses over placing two single bets, except perhaps in terms of time saved and convenience. To convert two single bets into a double, one need simply bet on the first horse. If it wins, stake all the winnings on the second horse. This is exactly what the double does automatically. However, by placing two singles you are able to control when and how much you bet on the second horse.

The same logic applies to a treble (all three selections have to be successful) or indeed any multiple bet.

Sometimes, however, the bookmaker will try to encourage multiple bets, by adding a bonus to any that win. The bookmaker's reasoning is that any advantage over the punter is multiplied in multiple bets, and so these bets tend to be especially profitable from the bookmaker's point of view. Unless you are confident that the advantage is actually in your favour at each stage of the bet, therefore, think very hard before placing a multiple. After all, the great flexibility of choosing when and how much to bet, and at what odds, is diminished once you lock your money in early.

Forecast Bets

Forecast bets are similar to multiple bets, except that the bet involves more than one horse in the same race rather than different races.

The best-known example of a forecast bet in the UK is the bookmakers' Computer Straight Forecast. This involves selection of the first two horses to pass the post in the correct order. Unfortunately, there is no simple way of working out in advance how much you will win if you are right. Instead, the payout is calculated according to a complex formula devised by the bookmakers. Need one say more?

The Tote's competitor to the Computer Straight Forecast used to take the form of the Dual Forecast. In the Dual Forecast punters would specify the first two home in either order (rather than the correct order), and the pool of winning bets was shared (after a 24% deduction).

Most independent analysis suggested that the Dual Forecast offered better value, in most circumstances, than the Computer Straight Forecast. The Dual Forecast has now been replaced by the Tote Exacta. This is the Tote's direct competitor to the Computer Straight Forecast.

If you must do forecast bets, it is worth checking a sample of payouts from the Computer Straight Forecast and the Exacta to identify for yourself which offers the better value. Most studies suggest that the answer is the Exacta, despite the sizeable deduction from the pool.

Other common forecast bets are the bookmakers' Tricast (first three in the correct order) and the Tote Trifecta (a pool bet with returns shared among those selecting the first three in the correct order).

Forecast bets are not available on every race. It is important to check with the individual rules of the operator before assuming that a Forecast bet is applicable.

Choice

The rise of telephone betting, and latterly betting on the Internet, has led to an explosion of choice for those seeking value.

Perhaps the best-known forum for highlighting the abundance of choice, and for pinpointing value, is the *Racing Post*'s 'Pricewise' column. This has been hosted by a succession of tipsters, including most recently Henry Rix and Melvyn Collier, both of whom have gone on to tip on a private subscription basis. At the time of writing the incumbent Pricewise is Tom Segal.

The Pricewise column, which appears every Saturday, and periodically on other days of the week, highlights a selection of bookmakers who are offering early prices about each of the horses contesting selected races. These races are usually, though not always, broadcast live on terrestrial TV.

Pricewise by no means highlights all the offers available, but it is a good start, and it is complemented by advice and analysis.

Latterly, those seeking to compare the odds on offer for best value have had the benefit of a number of Internet sites which have been set up to cater for this very need.

A good example is Oddschecker. Oddschecker is available at www.oddschecker.com and at www.oddschecker.co.uk

Easyodds is another odds comparison service, available at www.easyodds.com

Bestbetting can be found at www.bestbetting.com

Other useful odds comparison sites include:

- www.smartbet.com
- www.bookiesindex.com
- www.betbrain.com
- www.crastinum.com
- www.bookiebusters.net

Asian Handicap Betting

Asian handicap betting is an increasingly popular form of betting, particularly for match bets where one side of the match bet is significantly superior to the other. The basis of Asian handicap betting lies in the way in which it attempts to even up the chances of both sides of the match.

To achieve this evening up process, the side judged to be superior is artificially handicapped for betting purposes by the market-maker, relative to the side judged to be inferior. In other words, the side perceived to be the weaker of the two is awarded a notional head start as far as the match betting is concerned. The consequence is that the odds about the two options are brought closer to each other than would be the case if no handicapping process were involved.

Asian handicap betting has two forms.

The first is the *single handicap*, and the second is the *dual handicap*. In the case of the latter, you are effectively placing two bets, each of which is worth a half of your total stake.

Consider first the basic single handicap, and take for the sake of simplicity a simple half goal handicap in favour of the away side.

Example: **Man Utd (-½) v. Man City (+ ½)**

In this example, Manchester City, playing away, are given an artificial half goal start over Manchester United for betting purposes. With the benefit of this advantage, if Man City win or draw the match, they (Man City) will be declared the winners for betting purposes. If Man Utd win the match, then all bets placed on Man City will be losers. This is because Man Utd will have scored at least one goal more than their opponents, which is sufficient to outweigh the notional half-goal advantage handed to the visitors.

Assume now that the perceived margin of superiority is greater than this.

Example: **Arsenal (-1½) v. West Ham (+ 1½)**

Here West Ham are given a 1½ goal start over Arsenal for betting purposes. If Arsenal win the game by at least two goals, all bets placed on Arsenal will be winning bets. If West Ham win, draw or lose by a margin of just one goal, however, then all bets on West Ham are judged to be winning bets.

Take the case where both teams are judged by the market-makers to be evenly matched. This is shown on the handicap as follows:

Example: **Tottenham (level) v. Leeds (level)**

In these circumstances, stakes are simply returned if the match is drawn. If Tottenham win, on the other hand, all bets on Tottenham are winning bets. Similarly, if Leeds win, all bets on Leeds are winning bets.

Take now the case of a handicap of exactly one goal.

Example: **Newcastle (-1) v. Sunderland (+ 1)**

In this case, Sunderland are given a one goal start over Newcastle. In these circumstances, if Sunderland win or if the game is drawn, then bets placed on Sunderland will be winning bets. If Newcastle win by at least two goals, bets on Newcastle will be winning bets. If Newcastle win by one goal, however, the handicap bet is even and so all stakes are returned.

As long as the handicap line includes a half goal, a handicap draw is of course not possible.

In those cases where the handicap includes a whole number, a handicap draw is a possible outcome, in which case all stakes are returned.

There are more complex outcomes, where two handicaps are involved. In these circumstances, half your stake is placed at one handicap and half at the other.

Example: **Liverpool (-0, -½) v. Chelsea (+ 0, + ½)**

This handicap actually represents two bets – half your stake at the 0, or level, handicap and half your stake at the half goal handicap in favour of Chelsea.

In this case, if you bet on Chelsea and the game is drawn, one

half of your bet is a winner (the handicap bet at + ½) and the other half of your bet is effectively void (the bet at level handicap) and that part of your stake is returned. If you bet on Liverpool, and the game is drawn, again half of the bet is effectively void (that portion of the stake is returned) and the remaining half of the total stake (on the handicap bet at - ½) is lost.

Example: **Aston Villa (-½, -1) v. Southampton (+ ½, + 1)**

In this case, your total stake is divided equally between the ½ and 1 goal handicap bets in favour of Southampton. In these circumstances if you bet on Southampton, and Aston Villa beat Southampton by a single goal, one half of your bet is cancelled out by the one goal handicap, and therefore one half of your total stake is returned. The other half of your bet is a losing bet, since the half goal handicap does not cover the one goal deficit. If you bet on Aston Villa, and Villa win by a single goal, again half the bet is effectively void, and this portion of the stake will be returned on the - 1 goal handicap. On the other hand, half of the bet will be a winning bet, since the one goal victory is not cancelled out by the ½ goal handicap advantage enjoyed by Southampton.

Chapter 2: Betting On The Tote

In the UK there is an alternative to betting with bookmakers, and that is betting with the Tote (the Horserace Totalisator Board). The Tote is a pool form of betting, whereby all money staked is pooled together, and the pot (after deductions) is shared out among winning punters.

To the operators of the pool, the exercise is risk-free, as the money paid out is simply a share of what is already paid in. Since there are deductions taken from the pool, punters as a whole earn less than they bet, and so the average bettor loses. This is not to say that a skilled bettor cannot win in the long run by betting with the Tote, but it does mean that the bettor has to be able to overcome deductions of up to 30%.

There are a number of different pools, and the lowest deduction is from the win pool, i.e. the pool of all bets staked on a horse (or dog) to win. The largest deduction (of 30%) is from the so-called 'Scoop 6' pool, which is a pool of bets seeking to identify the winners of six selected televised races. The chances of winning are, of course, very small, but the winner or winners are assured a commensurately sizeable payout.

The real disadvantage of betting on the Tote is that you do not have the option of learning what odds you are taking at the time the bet is struck. The final odds depend on the relative amounts of money staked on the different outcomes, which is not known for certain until after the race commences. Even so, an indication is available from computerised screens that provide regularly updated information on flows of money into the pool. A related problem is that one very big bet can change the odds sharply, particularly at meetings where the pool is relatively small. High rollers are in these circumstances advised to stay clear, for their own stake may well cut the payout about their chosen beast quite drastically.

On the plus side, the Tote is totally impartial, and so the odds on offer genuinely reflect the weight of money placed by punters. In particular, horses (or dogs) which are unpopular with the betting public will start at good odds, i.e. they will pay handsomely to those few who do back them, if they win. There is ample published

evidence which shows a tendency for the odds available about such so-called longshots with the Tote to be rather more generous than with the bookmakers. However one sees it, the choice that the two betting mediums offer the UK punter is clearly of significant benefit, if used properly.

Most countries do not offer bettors the luxury of betting with bookmakers or with the Tote. In the USA, for example, horse racing and greyhound racing are operated by a Tote (so-called parimutuel) monopoly. Bookmakers at the track are outlawed. The same applies in many other countries, such as France, Canada, Hong Kong, Japan and New Zealand.

Australia has an in-between system, whereby the Tote and bookmakers co-exist at the racetrack, but where the Tote has a monopoly off-course.

To summarise, the co-existence of bookmakers and the Tote offers a clear benefit to the betting public, who can choose the better odds on offer. For less fancied runners, in particular, this is often available with the Tote. Either way, it is worth comparing the odds before placing a bet, while taking account of the fact that it is not possible to know with certainty what odds you are getting unless you take a price with a bookmaker.

The Way To Bet On The Tote

The Tote operates as both a bookmaker and as a monopoly supplier of pool betting on horse and dog racing. It was set up as a pool betting operation in 1929, but this now makes up only a small proportion of its total turnover.

From the astute bettor's point of view, this is actually a little surprising, because the odds available about the same horse or greyhound in the Tote pool is often superior to that available with bookmakers at starting price, and on the average significantly better for less-fancied chances.

The basic way of betting on the Tote at the course is to approach any of the red-coated attendants manning the Tote terminals which are usually conveniently near to the paddock or hospitality areas of the racecourse. Tote Credit clients also have access to their own client area. Off-course, bets can be placed at any Tote betting office, or by

telephone, or on the Tote web-site. There are also a number of so-called Tote Direct terminals in the offices of rival bookmakers, notably Ladbrokes and Coral, which accept bets straight into the pool.

The simplest bet is a bet to win. The minimum stake is £2, and the whole of the pool is shared out among winning bettors, save for a deduction of 13.5%. There is no maximum stake but in a small pool a large bet is likely to depress the odds about the selection too much to make betting sense. In the larger pools, however, characteristic of all-Tote countries, especially Hong Kong, even sizeable bets may fail to make a dent in the odds.

Other Tote bets include:

Place: this is a bet on the horse to finish in the first three (usually), although the number of finishers which qualify for a winning place bet can vary depending on the number of runners and the type of race.

Each way: this is a win and a place bet on the same horse. It is available on all races of five or more runners.

Exacta: this bet requires selection of the first and second-placed horse in the correct order.

Jackpot: this bet requires selection of the winners of all six specified Jackpot races (usually races 1 to 6). It operates daily at a selected meeting.

Placepot: This bet requires selection of a placed horse in all of six specified Placepot races (usually races 1 to 6). It operates at every meeting.

Quadpot: This bet requires selection of a placed horse in each of four selected Quadpot races (usually races 3 to 6). It operates at almost every meeting.

Trifecta: This requires selection of 1st, 2nd and 3rd in the correct order in nominated races of eight or more runners.

Scoop 6: This requires the selection of the winners of each of six nominated TV races, and operates on a Saturday only. The races may be selected from more than one meeting.

Chapter 3: Spread Betting

In addition to the well-established Tote (parimutuel) system of betting, and odds offered by bookmakers, a third method of betting on horse racing and indeed a wide array of other events has developed in recent years, called *spread* (or *index*) betting.

In spread betting in a sports context, the event that is the subject of the bet may be almost anything. Popular examples include the number of goals (or indeed bookings) in a football match, the number of runs scored by a team (or individual player) in a cricket match, the winning distance in a horse race, the number of points scored in a rugby match, and so on.

For financial spread betting, the commodity is usually the price of a stock, or the level of an index, at some specific time in the future, say the close of the present trading day, or a given time on a given day in a given month. Spread betting enables a trader to take a position on the price of a stock without any need ever to trade the stock itself.

Whatever the context, the market-makers set a 'spread' around the expected outcome, and their clients (the bettors) are invited to *buy* at the top end of the spread, or *sell* at the bottom end.

For example, in a cricket match between England and Australia, the spread betting company's odds-setter might estimate that England will score 200 runs in their first innings. In this case, a 'spread' might be set of, say, 190 to 210 runs, which includes the estimate. In this example 190 runs (the lower figure) is known as the bottom end of the spread, while 210 runs (the higher figure) is known as the top end of the spread.

A bettor who believes that England will perform rather worse than expected may now sell at the bottom end of the spread, at 190 runs, for any given stake, within his credit limit, say £10 a run. If England were to score less than 190 runs, the bettor would win the stake (£10) multiplied by the number of runs by which England fall short of 190. For example, if England scored 170 runs, the bettor wins £200, calculated as the difference between the final outcome (170) and the sell point (190) multiplied by the stake (£10). On the other hand if England were to score more than 190, the bettor would

lose the stake (£10) multiplied by the number of runs by which England exceed 190. For example, if England score 270 runs, the bettor loses £800, calculated as the difference between the final outcome (270) and the sell point (190) multiplied by the stake (£10).

The same reasoning applies to a buy bet. In the example of the England – Australia game, the spread on England's first innings runs total is set at 190 – 210. A bettor who believes that England will perform rather better than expected may buy at the top end of the spread, at 210 runs, for any given stake, within his credit limit, say £10 a run. If England were now to score more than 210 runs, the bettor would win the stake (£10) multiplied by the number of runs by which England exceed 210. For example, if England score 270 runs, the bettor wins £600, calculated as the difference between the final outcome (270) and the buy point (210) multiplied by the stake (£10). On the other hand, if England were to score less than 210, the bettor would lose the stake (£10) multiplied by the number of runs by which England fall short of 210. For example, if England score 170 runs, the bettor loses £400, calculated as the difference between the final outcome (170) and the buy point (210) multiplied by the stake (£10).

To take another example, we can consider the market about the time that the first goal will be scored in a football match.

Say, for example, the bookmaker's best estimate of the time that the first goal will be scored is 35 minutes. In this case, the spread may be quoted as, say, 34 – 36. The bettor may now buy the time of the first goal at 36 or sell at 34, for a given stake. If the bettor buys at 36 and the first goal is scored in, say, 44 minutes, the bettor wins 8 (the difference between 44 and 36) times the stake. If, on the other hand, the first goal was scored in 24 minutes, the bettor would lose 12 (the difference between 24 and 36) times the stake. The same logic applies to a sell, so that the bettor wins (loses) in proportion to how right (wrong) the original bet turned out to be.

There are currently four major sports spread betting companies for sport. These are Sporting Index, IG Index, Cantor Sport and Spreadex. City Index specialises in spread betting on financial matters, such as the price of shares at the close of trading on the stock market. All of these companies are regulated by the Financial Services Authority, and each company may offer a different quote about the same market.

Another relatively new player on the market is Sportsspread.

Financial spread betting is offered by Cantor Index, IG Index, City Index, Spreadex, Finspreads, Tradindex and Deal4free.

Whether in sport or in the stock market, spread betting profits are free from capital gains tax, and there are no dealing or commission charges, stamp duty or other deductions. One consequence of the regulatory regime is that, unlike bets with UK bookmakers which are binding in honour only, a spread betting transaction is a legally enforceable contract; bettors may incur heavy losses if events turn against them.

A gambler wishing to participate in spread betting must normally arrange a suitable amount of credit with a spread betting firm, and specific transactions are usually conducted by telephone, with the calls recorded to settle any dispute. The firm may decline any bet a gambler proposes, or accept it only at a lower unit stake, or else may ask the gambler to increase his line of credit before the bet can be accepted. Clients may open or close trades at any time in dealing hours, with instant execution.

A common use of this flexibility when trading in single shares is to make a bet that a price will fall, or rise. For example, if the buy price of a share is 500p, a gambler who expected the price to rise could decide to buy at the rate of £10 for each 1p movement in the price. The maximum loss, if the share became worthless, would be 500 x £10, i.e. £5000.

The scope of 'assets' that are traded in spread betting markets is wide, ranging from the price of gold to the number of goals in a soccer match. Indeed, the 'asset' that is the subject of the trade can include almost any clearly quantifiable feature of an array of sports, political and financial markets. There are also some so-called 'speciality' indices, for example the number of Oscars won by a given film at the Academy Awards ceremony. Standard political trades include the number of seats gained by a political party in an election. Financial trading is exceptionally diverse, and includes the values of the Wall Street, DAX, FTSE, Hang Seng and Nikkei share indices, the price of individual shares traded on these markets, the price of a variety of commodities, as well as bond and currency futures.

The clear advantage of spread betting, therefore, is the sheer diversity of eventualities on which a client can bet. Moreover, the bettor can win large sums of money for a relatively small unit stake. Therein, however, lies the major disadvantage of spread betting. The sums lost can exceed the sum staked by a huge amount, unlike fixed odds or pool betting, where the most that can be lost is the sum staked.

In summary, spread betting is a relatively novel form of betting, which offers the opportunity to win (or lose) large amounts of money. In the right hands, it can be an invaluable part of the bettor's armoury, but because losses are not limited to the stake, *extreme caution should be exercised, particularly by the novice punter*.

The Way To Bet On The Spreads

Test Yourself

Your first bet

You wish to bet on the number of corners in a forthcoming match between Leeds and Liverpool.

You are offered a quote of 10 – 11.

You think there will be more than 11 corners, and you buy at 11 for £20 per corner.

IF FINAL RESULT = 15 corners, what is your profit/loss?

Answer

Profit = Stake (Outcome - Buy price)

$$= £20 (15 - 11) \text{ equals } £20 (4)$$
$$= £80$$

IF FINAL RESULT = 9 corners, what is your profit/loss?

Answer

Profit = Stake x (Outcome - Buy price)

$$= £20 (9 - 11)$$
$$= - £40$$

LOSS = £40

Your Second Bet

You are offered a quote of 10 – 11.

You think there will be fewer than 10 corners, and you sell at 10 for £15 per corner.

IF FINAL RESULT = 8 corners, what is your profit/loss?

Answer

Profit = Stake x (Sell price - Outcome)

$$= £15 (10 - 8)$$
$$= £30$$

IF FINAL RESULT = 18 corners.

Answer

Profit = Stake x (Sell price - Outcome)

$$= £15 (10 - 18)$$
$$= - £120$$

LOSS = £120

Risk Management In Simple Sports Spread Bets

In each of these cases you can close the bet at any time during the opening of the market, by making a bet in the opposite direction of the same stake.

If this is at the same quote as that at which you opened the bet, you will lose your stake multiplied by the size of the spread.

Example

At the start of the match, the quote about the number of corners is 10 – 11.

You buy corners at 11, for £20 per corner.

If you now change your mind and decide to close the bet entirely, you must sell at 10 for £20.

You lose: (buy price - sell price) stake

$$= (11 - 10) £20$$
$$= £20$$

The usefulness of a strategy of closing the bet often occurs when the game is in play. A number of markets, particularly live televised matches, are traded 'in running'.

Take the same example as above: You buy corners at 11 before the match.

Now examine the following scenarios.

Scenario 1

After ten minutes of play, four corners have been taken.

The quote has risen to 13 – 14.

If you wish to close the bet totally, you can sell at 13, for the same stake (£20).

You now earn a sure profit of (new sell price - old buy price) stake = (13 - 11) £20 = £40.

Scenario 2

After 30 minutes of play, no corners have been taken.

The quote has now fallen to 7 – 8.

You decide to close the bet, by a sell at 7 for £20.

You incur a sure loss of (old buy price - new sell price) stake = (11 - 7) £20 = £80.

In each case, you have decided to close the bet to guarantee a given profit or to cap a given loss.

Financial Spread Betting

An increasingly common way of trading, particularly suitable for the smaller investor, is known as financial spread (or index) betting.

Financial spread betting companies operate, just like sports spread betting companies, by quoting a spread about variables in a market characterised by an uncertain future outcome. A popular example is the FTSE 100 index, i.e. the index of the performance of the major stocks quoted in the UK. The higher the FTSE 100 index, the higher the price, on average, at which the top shares are trading.

Say, for example, that the market-makers consider that the FTSE 100 will close the day at 5000.

In this case they may quote a spread of, say, 4995 – 5005, which includes their best estimate of the actual closing price.

Clients of these companies are now invited to buy at the top end of the spread (5005) or sell at the bottom end (4995). The outcome of the trade is calculated as the number of units by which the actual

outcome differs from the level at which the trade is enacted.

The units are calculated according to the minimum marginal difference between positions at which trades can be implemented. The profit/loss is calculated as this number multiplied by the unit stake at which the client places the trade.

Example

Opening of market: FTSE 100 is trading at 5015

The market-makers quote a spread on the day's closing price of, say, 5010 – 5020

One hour after the opening of the market: FTSE 100 has risen to 5025

The market-makers are now offering a spread of 5020 – 5030.

You have two choices if you wish to trade.

Choice A: buy at 5030.

Choice B: sell at 5020.

You must then choose your unit stake, say £10 per point.

Now consider the following scenarios.

Question

Scenario 1

At the close of the day's trading, the FTSE stands at 5080.

What is the profit/loss if you adopted Choice A?

What is the profit/loss if you adopted Choice B?

Outcome A:

Having bought at 5030, you correctly predicted that the spread was too low.

For every point over 5030 you win your unit stake, i.e. £10.

Therefore, you **win** (5080 - 5030) £10 = £500.

Outcome B:

As a seller at 5020, you incorrectly predicted that the spread was too high.

For every point over 5020 you lose your unit stake, i.e. £10.

Therefore, you **lose** (5080 - 5020) £10 = £600.

Risk Management

Whether you are selling or buying, you can indicate to traders a level at which you would like your bet to be closed without further reference. This is known as a *stop loss*, and it is designed to mitigate risk.

Example

You ask, in May, for a price on the June FTSE 100, i.e. the closing price on a stipulated day in June.

You are given a June FTSE 100 quote of 5310 – 5320.

Your view is that the market will rise, so you buy at 5320, for £10 a point.

As it is an unpredictable market you decide to take out some 'insurance'. To do this you place a stop loss order with the traders at, say, 5270.

This means that as soon as the quote on June FTSE 100 falls to, or below 5270 – 5280, your bet will be closed at the first trading opportunity, for a loss of (5320 - 5270) £10 = £500.

This is a protection against further losses if the market continues to fall. However, the stop loss cannot be guaranteed at the precise level requested, particularly in fast-moving markets.

Guaranteed Stop Loss

This type of order offers complete protection at the chosen stop loss level, but involves an extra premium. The service can be applied when buying or selling.

Example

You ask, in May, for a price on the June FTSE 100, i.e. the closing price on a stipulated day in June.

The quote is 5350 – 5360.

You think that the level is too high, and therefore you sell at 5350, for £10 per point.

However, you decide to leave a guaranteed stop loss order at 5450. For this there is a premium charged of, say, 3 points. Hence, the selling level is now at 5347 (5350 - 3).

Now, assume that between the date of the agreement and its expiry

(in June) some very optimistic financial news is released overnight, during the close of trading.

The consequence may be that the spread for the June FTSE 100 index opens sharply up at, say, 5510 – 5520.

Without GSL (i.e. with a standard stop loss order), your loss would have been:

(5520 - 5350) x £10 = £1700.

With GSL, your position is automatically closed at your guaranteed level of 5450 (not 5520).

So, you sold at 5347 for £10, and the bet is closed at 5450.

Therefore, your loss = (5450 - 5347) £10 = £1030.

This limits the loss on your bet to £1030.

Limit Orders

You can place a limit order at the same time as you open a bet, or anytime thereafter, in order to close the bet if it reaches a pre-determined profit level.

Example

You buy, in May, the June FTSE 100, at 5270, for £3 per point, in the belief that the market will rise.

However, you think that if the market goes up by 100 points it might well then fall back, so you place a *limit order* to sell at 5370 for £3 if the quote reaches 5370 – 5380 to close the bet.

Assume now the spread for the June FTSE reaches 5370 – 5380 a few days later in May.

Your limit order is activated and you sell at 5370 for £3.

You **win**: (5370 - 5270) £3 = £300.

N.B. You can also place *forward orders* to open a bet (buy or sell) if a market rises or falls to a level you specify.

Managing Risk By Closing The Bet

Closing For A Known Profit

You ask, in May, for a price on the June FTSE 100, i.e. the closing price on a stipulated day in June.

The spread is quoted at 5520 – 5530. You think that the spread is too high, and therefore you SELL at 5520 for £5 a point.

Over the next few days, and before expiry of the contract, the FTSE has gradually fallen, so you ask for a new quote. On calling, you are offered a spread of 5460 – 5470.

You buy the June FTSE at 5470 for £5.

You have closed out with a sure profit of:

$$(5520 - 5470) £5 = £250$$

Closing For A Known Loss

Assume now that the daily FTSE is standing at 5530 – 5540. You think that the spread is too low, and therefore you BUY at 5540 for £15 per point.

Later in the day, you call back and find that the quote has slipped to 5505 – 5515. You are concerned that the market may fall further and decide to cut your losses.

Since you originally bought for £15 a point, to fully close the position you need to sell for £15 a point at the new selling price of 5505.

Your sure loss is:

$$(5540 - 5505) £15 = £525.$$

In both the above cases you have closed the bet by making a bet in the opposite direction, of the same stake.

If you make a bet in the opposite direction, for a smaller stake, you have partially closed the bet.

Options

This section is intended for advanced study only. Please feel free to skip it if you wish.

Options allow you to choose whether to buy or sell a particular market.

There are two types of option – *calls* (backing the market to rise) and *puts* (backing the market to fall).

Options offer the security of knowing your exact downside when buying a call or a put.

Call Options

Example

In April, with the FTSE 100 standing at 5000, you believe that the market is set to rise substantially. However, rather than bet on the June FTSE futures market, you decide that it is less risky to buy a call option, because your maximum downside is known in advance.

Say that the June FTSE 5200 call stands at 40 – 50.

You decide to buy at 50 (this is the premium) for £10 a point.

Outcome A: Index rises

Say, now, that the index rises to 5250 by 1st May. The June FTSE 5200 call will also have risen, say to 90 – 100.

You may now take a profit by *selling* the option at 90, for a sure profit of £400, i.e. (90 - 50) £10.

Alternatively, you could wait till the expiry date in June and take your chance that you will be able to exercise the option to *buy* at 5200. As long as the market at expiry stands above 5200 (say 5280) you exercise your option to buy at 5200 and win the difference between the closing price (5280) and the buy price (5200), multiplied by your unit stake. From this must be deducted the premium (50) times the unit stake.

However badly the FTSE performed, the premium cannot fall below zero and, therefore, the most you could lose by buying the option at 50 for £10 a point was £500.

Outcome B: Index falls

You buy a June 5200 *call* at 50 with a stake of £10 per point. The index then falls sharply.

At the date of expiry in June, the FTSE stands at 5100. You cannot exercise your option to buy, since your call is worthless (the market failed to rise above 5200), and you lose the premium (50) multiplied by your unit stake (£10 a point), i.e. £500.

Irrespective of how far the index drops, your loss is capped at £500 in this example.

Put Options

Example

In May, with the FTSE 100 standing at 5050, you are offered a quote for a June FTSE 4900 put at 84 – 94. This gives you the right to sell the index at 4900 on or before the expiry date, having paid a premium of 94.

Say, now, that the index falls to 4710. Since your put strike price was 4900, you exercise your Option.

The difference between the strike price and the market price = 4900 - 4710 = 190.

However, the premium is 94.

So your profit = 190 - 94 = 96 x £5 = £480.

Let us now consider the opposite scenario. You buy a 4900 put with a stake of £5 per point. The index then rises. You do not exercise your option to buy, since your put is worthless.

Irrespective of how far it rises, your loss is your stake multiplied by the Option price (in this case 94):

Loss = 94 x £5 = £470.

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Chapter 4: Betting On The 'Exchanges'

If spread betting is the youngster of the betting mediums, so-called 'exchange betting' is the toddler.

The idea behind betting exchanges is quite simple. It is to match up someone who wants to bet on something at a given price with someone else who is willing to offer that price. This way both sides are happy, at least until the result is known.

The person who bets on the event happening at a given price is the backer. The person who offers the price is known as the layer. In effect, he is laying the bet in exactly the same way as a bookmaker does.

The advantage of this form of betting is that it essentially cuts out the formal bookmaker, and thereby the bookmaker's margin. It also allows everyone on the exchange to act as a bettor (backer) or bookmaker (layer) at will. Indeed, it is possible to back and lay the same event.

There are drawbacks, however, to this type of betting, and a primary one is that the operator of the exchange deducts a commission, normally from winning bets, and usually up to 5%. The other drawback is that there may not be enough people interested in acting as a bookmaker on certain events. Even where there are people willing to lay bets, sometimes these are to very small sums.

The betting exchanges certainly increase the choice on offer, however, to those interested in making money from betting.

The Way To Bet On The Exchanges

There really is excellent value to be had from betting on the exchanges, but only a very small proportion of those who bet know how to use them.

Those who are interested in learning will find it surprisingly simple once the initial unfamiliarity has worn off, and great fun.

The idea is that you get to act as a bettor or a bookmaker, or both at the same time.

Backing On The Exchanges

Example

Say you are considering trading the outcome of a match between Leeds and Liverpool.

Your first consideration is whether the odds about a Leeds win, a Leeds defeat or a draw are in your favour.

The major betting exchanges present you with the three best odds and stakes which other members of the exchange are offering. For example, for Leeds to beat Liverpool the best odds on offer might be 3 to 1 (4.0 in decimal notation), to a maximum stake of £80, 11 to 4 to a further stake of £100 and 5 to 2 to a further stake of £500. This means that you can stake up to a maximum of £80 on Leeds to beat Liverpool at odds of 3 to 1, although you could bet a further £100 at 11 to 4 and a further £500 at 5 to 2. These odds, and the amount you can stake, may have been offered by one or more other clients who believe that the true odds are longer than they have offered.

Say you think that the true odds of Leeds winning should be 5 to 2, you may decide to stake £80 at the 3 to 1 and a further £100 at 11 to 4, since both these odds are longer than you think the true odds are. If you wish to be cautious, however, you may decide to stake a smaller sum on the outcome.

Before staking the money, however, you should check that no bookmaker is offering as good a deal, or better. This is important, since there is usually a commission deducted from winnings on the betting exchanges, whereas returns with the bookmakers are deduction-free.

An alternative option available to potential backers is to enter the odds at which you would be willing to place a bet, together with the stake you are willing to wager at that odds level. This request (say £50 at 4 to 1) will then be shown on the request side of the exchange, and may be accommodated by a layer at any time until the event is over.

Laying On The Exchanges

To lay a bet you set the odds you wish to offer and the stake you are prepared to accept at those odds. Say you think it unlikely that Leeds

will win, you may decide to lay Leeds at, say, 3 to 1, instead of backing them. Perhaps you are willing to lay Leeds at 3 to 1 up to a stake of £20. This means that you are willing to accommodate a backer (or backers) up to a total of £20 at 3 to 1. If your bet is fully matched, you will be liable to pay out £60 (3 x £20) if Leeds go on to win, but you keep the £20 if they lose or draw.

Betting exchanges include Betfair (www.betfair.com), Betdaq (www.betdaq.co.uk, www.betdaq.com), Sporting Options (www.sportingoptions.co.uk), GGBet (www.ggbet.com) and Betsson (www.betsson.com).

Intrade As An Exchange

Intrade is a betting exchange which works in a similar way to futures markets. In particular, standardised contracts are bought and sold between exchange members. Members of the exchange trade with each other, with the operator charging a transaction fee on each trade.

All contracts can be bought or sold, and there are two types of contract – *short-term* contracts and *long-term* contracts. Short-term contracts usually cover individual events, such as a particular football match. Long-term contracts usually cover seasonal events, such as the total number of points obtained by a team over the course of the whole season.

There are two basic methods of trading. The first involves *PIX* (Percentage IndeX) contracts, the second *totals* contracts. Let us consider these in turn.

PIX Contracts

PIX contracts are percentage representations of potential outcomes of sporting events.

The outcomes range from a notional 0 to 100. 100 represents a positive outcome, i.e. a win. Zero (0) represents a negative outcome, i.e. a non-win. The contracts can, in principle, trade anywhere between 0 and 100. When the outcome is determined, however, the contract will expire at either 0 or 100.

Multiple PIX contracts may be listed on the same event. The simplest case is where there are three possible outcomes , i.e a win, a draw and a loss.

Example

Arsenal v. Liverpool

There are three possible outcomes, and therefore three linked PIX contracts :

1. Arsenal win
2. Liverpool win
3. Draw

Thus Arsenal might be quoted at 55 – 58.

At this quote, clients can *buy* the Arsenal PIX at 58, or *sell* the Arsenal PIX at 55.

Say a client decides to buy. He may than buy, say, 100 contracts at a price of 58. At this price, he is risking 58 trading units (or 'ticks') on each contract if Arsenal lose or if there is a draw. The reason is that the contract makes up at 0 in the event of any outcome other than an Arsenal win. The potential upside is 42 ticks on each contract if Arsenal win, i.e. the difference between the expiry price (100) and the buy price (58).

At any point during the course of the market, the client may decide to close the trade by selling a contract previously bought, or vice versa. This might lock in a loss or a profit, depending upon how the market has moved in-between.

Totals Contract

Totals contracts are priced to represent some likely quantity, such as the total number of goals scored in a football match, or number of runs in a cricket match. Each totals contract will have a given range, as well as a prescribed tick size and tick value. If an event results in more or less (e.g. runs, points) than the pre-set range, the contract will expire at the specified minimum or maximum price.

Example

Man United Total Season Points:

Tick Size 0.1, Tick Value 10p, Min Price Value 50, Max Price Value 100.

In this example the range is specified as 50 points to 100 points. So if a client decides to BUY 10 Man United contracts at a price of

80, and the final result is 82, the trader has a profit of 20 points (10 contracts of 2 points) or 200 ticks (tenths of a point). Since each tick in the example has a specified value of 10p, the profit is £20 (200 ticks at 10p per tick). The maximum profit is 200 points (10 contracts of 20 points), which would be realised if Man Utd amassed 100 or more points.

The Tradindex Sports betting exchange also works on a 0/100 principle. Bets are placed with other clients of the exchange, in the form of shares which trade between 0 and 100. Winning team shares expire at 100. Losing team shares expire at 0. In a draw both teams' shares expire at 50.

Perhaps the most interesting manifestation of this sort of exchange is that offered by Tradesports (www.tradesports.com) where traders come together to exchange contracts based on their opinions about the likely outcomes of a diversity of topical issues and news stories.

Chapter 5: Bookmakers And The Exchanges

Comparing The Options

2002 Cheltenham Festival, Tuesday, March 12th

There is so much tax-free competition between bookmakers that the modern-day bettor is faced with a paradise undreamed of in the not too distant past. Now add in the option of comparing the offers from the bookies with the betting exchanges, and it is not difficult to fathom why the odds are starting to look loaded in favour of the bettor. The trick lies in using these options to maximum advantage.

Take as an example the first day of the 2002 Cheltenham Festival. Six races featured on the card, including the Supreme Novices' Hurdle, the Arkle Trophy and the Champion Hurdle.

Diehard followers of the *Racing Post* advice forums will have turned straight to the Pricewise page in large numbers, for Tom Segal's idea of value. Win or lose, the conventional wisdom states that the prices advised in this column will not usually last long, and so if you want to choose the selected horse/s, you will need to do so early.

On Champion Hurdle day, there were five new pieces of advice.

2.00 Cheltenham: Gerrard Supreme Novices' Hurdle

The first new advice was *Mutakarrim* in the 2.00, advised at 50 to 1 with Victor Chandler, for a stake of 2 points each way. The next best prices available about the Dermot Weld-trained 5-year-old were the 40 to1 available with Blue Square and Surrey Racing, both identified in the Pricewise odds comparison table. Visitors to the Oddschecker sites were alerted to the additional 40 to 1 available with Betabet, though not pointed in the direction of Surrey. Elsewhere there were general 33s and 25s on offer.

Clearly, Chandler was the firm to go with. There was a slight problem, though, in that Victor C's operation had opened up at the unusually early time of 8 am, just for the duration of the Festival.

Those unaware of the revised opening hours were, of course, unable to grab the price, which lasted as long as one might expect in the face of the astute early birds just waiting for such an unexpected opportunity. Those seeking solace in the 40 to 1 available with Blue Square were accommodated for longer, but to a maximum of just £10 each way.

Still, dragging around the various outlets allowed a reasonable sum on the Pricewise fancy at 40 to 1.

Whatever price you took, and especially if you got the early 50 to 1, there might be money to be made regardless of the outcome. How so? Well, this is where the betting exchanges come in.

Take Betfair as an example. By 9.10 am, it was possible to back Mutakarrim at 35 to 1 to the extent of £90, at 34 to 1 for a further £2 and at 33 to 1 for another £153. More interestingly, it was also possible to lay the horse at 37 to 1 for £5 or at 39 to 1 for £25. If you were of a mind, there were people out there wishing to stake another £100 with you if you would offer them 49 to 1. If you had bet £30 on the horse at 50 to 1, of course, you could now lay the horse at 39 to 1 and shorter to the same stake. If the horse won, you would still be in profit. To be precise, your £30 on Mutakarrim at 50 to 1 with Chandler would have yielded you a tax-free £1500. In debit, you would have had to pay out at 39 to 1 those punters who staked £25 with you (a total of £975), and at 37 to 1 to those punters who staked £5 with you (a total of £185). This makes a grand total of £1160.

Your net profit on the deal works out at £340 (£1500 - £1160).

If the horse lost, you would have lost the £30 you staked with Chandler but gained the £30 staked with you by other clients of Betfair.

A risk-free £340, then? Not quite, because of the 5% commission charged on winnings to all but the very regular or high-rolling players on the Betfair Exchange (who pay a lower commission). In reality, you stood the chance of winning £340 for the potential downside (if the horse lost) of 5% of £30, i.e. £1.50.

In order to realise an actual risk-free profit, you would have needed to lay the horse on the exchange for a little more than you had staked on it to win.

For example, let's say you staked just £25 on Mutakkarim at 50 to 1 with Chandler. In this case, you would stand to win £1250 if the horse won.

However, by laying the horse at 39 to 1 (for £25 – as before) and at 37 to 1 (for £5 – as before), you would be obliged to pay out £1160 to your Betfair colleagues. That makes a net profit of £90. This is rather less than before, but at least it is risk-free. Why so? Well, if the horse lost you would lose £25 to Chandler, but you would gain £30 from your Betfair dealings, which is still £28.50 after deducting the 5% commission. The difference between your winnings on Betfair and your loss to Chandler is £3.50 (£28.50 minus £25).

In other words, if Mutakkarim wins, you win £90. If Mutakkarim loses, you win £3.50.

A free lunch every time? Not really, as the evidence of the second Pricewise horse to be advised proves so tellingly. The horse in question was the Noel Meade-trained 6-year-old, *Scottish Memories*, in the very same race, and also tipped at 50 to 1. Sounds similar advice, but as a betting proposition, we were talking a whole different ball game. The first warning sign was the fact that Victor Chandler were still willing to offer the horse at 50s long after the 8 am opening bell, and it was possible to take the same long price with the likes of William Hill, Ladbrokes and Surrey, as well as SportingOdds and Sports.com.

Clearly, the, the 50 to 1 did not represent such unique value. Still, according to the Pricewise column, it represented value nevertheless. The advice was to take the price for 2 points each way.

Those unsure of the value might have looked on a shrewdly placed £20 each way, say, as a solid bet anyway. The reason for their optimism lay in the hope that the odds would plunge from 50 to1 simply because it was the Pricewise fancy, and that the opportunity would soon open up to hedge, or lay, the horse at rather less than 50 to 1. Suitably planned, a risk-free bet on Scottish Memories looked a banker.

The reality was rather different, as would-be hedgers in the exchanges might care to bear in mind. How so? Well, it is true that for a brief few minutes there were those on Betfair who were willing to stake £14 at 49 to 1. Those waiting for the gravy train were to be sorely disappointed, however, as it never reached the edge of the station. Instead, by 10.15 all that was available to the layer was a lonely offer of £3 if you would give odds of 59 to 1, and a further £9 floating around in pursuit of 65 to 1. Worse still, clients of Betdaq or

GGBet were seemingly unwilling to make an offer to back the wretched thing at any price.

Anyone would be forgiven for thinking that the horse had been spotted limping to the course.

In the event, Scottish Memories performed rather well, finishing a gallant seventh at 50 to 1 despite being severely hampered as he was making his challenge. Who knows how close he would have got with a bit more luck? So much for listening to the market.

Mutakarrim, for the record, finished a poor 18th, at a starting price of 25 to 1.

The other end of the market told another story.

The favourite at the opening of market hostilities was *Like-a-Butterfly*, available at a best-priced 5 to 2 with Blue Square, Surrey and Sportingbet.

Subsequently, the best odds at which it was possible to place a bet on *Like-a-Butterfly* on the exchanges was 2.6 to 1 (decimal 3.6), which is marginally longer than the bookies' best price, but subject to the penalty of a 5% commission on any winning bet.

By the time the market opened on-course, the generally available price was 2 to 1, and the starting price was as short as it ever got, at 7 to 4. Despite this, one intrepid punter managed to place a bet of £100,000 to win £225,000, and two other bets of £25,000 were placed to win £56,250.

Like-a-Butterfly won by a neck!

2.35 Cheltenham: Irish Independent Arkle Challenge Trophy Chase

The third Pricewise tip of the day was *Youlneverwalkalone* in the 2.35. Trained by Christy Roche, the 8-year-old was advised at 14 to 1 with Sunderlands, to a proposed stake of 3 points to win and 1 to place, and Sunderlands were happy to lay the price. 12 to 1 was the best price available elsewhere.

This was a horse that it was easy to lay at 12.5 to 1 for most of the morning on the exchanges, for a sure profit if appropriate stakes were employed. Despite a bet of £4000 each way, and another of £3000 each way, at 10 to 1, the horse trotted home last of the finishers.

3.15 Smurfit Champion Hurdle Challenge Trophy

No Pricewise tip for the Champion Hurdle, but three (theoretically)

fairly equally matched horses made for a fascinating betting proposition. The three contenders at the early morning opening were *Valiramix*, *Istabraq* and *Landing Light*.

Valiramix was a best-priced 9 to 4, available in quite a few places; Istabraq opened in the morning at a best 3 to 1, with UKBetting and Surrey; 7 to 2 could be had about Landing Light with UKBetting and Sports.com

By 9.30 am the exchanges were already accommodating backers and layers of all three to fairly sizeable sums, with Valiramix the clear favourite on Betfair (available at 2.2 to 1 for £2798). Istabraq was available at 3 to 1 for £1306 and Landing Light at 3.4 to 1 for £265.

By 10.30 it was possible to take all three at longer prices. Valiramix was on offer at 2.4 to 1 for £545, Istabraq at 3.1 to 1 for £84 and Landing Light at 3.5 to 1 for £899.

By noon the market had settled, and a comparison of the prices available to back and lay on two leading exchanges revealed the following:

Betfair	Betdaq
Valiramix	
To back:	
2.4 to 1 (£2759)	2.3 to 1 (£2263)
2.3 to 1 (£2262)	2.2 to 1 (£1182)
2.2 to 1 (£2759)	2.1 to 1 (£476)
To lay:	
2.5 to 1 (£1335)	2.4 to 1 (£1003)
2.6 to 1 (£1265)	2.5 to 1 (£3750)
2.8 to 1 (£8)	2.6 to 1 (£1706)
Istabraq	
To back:	
3 to 1 (£655)	2.9 to 1 (£928)
2.9 to 1 (£958)	2.8 to 1 (£1429)
2.8 to 1 (£777)	2.5 to 1 (£400)
To lay:	
3.1 to 1 (£695)	3 to 1 (£300)
3.2 to 1 (£1731)	3.1 to 1 (£4141)

| 3.3 to 1 (£681) | 3.3 to 1 (£165) |

Landing Light
To back:

3.5 to 1 (£189)	3.5 to 1 (£190)
3.4 to 1 (£851)	3.4 to 1 (£921)
3.3 to 1 (£1030)	3.3 to 1 (£574)

To lay

3.6 to 1 (£226)	3.6 to 1 (£604)
3.7 to 1 (£1232)	3.7 to 1 (£2960)
3.8 to 1 (£45)	4 to 1 (£2260)

On course, Valiramix opened at 9 to 4, and started at 3 to 1. The starting price was as long as it was ever available on the day, and the casual punter who took the SP got better odds than all the sophisticates who had eagerly scanned the early prices and exchanges for value.

Not so in the case of Istabraq, who opened on course at 5 to 2 and started as short as he ever was, at 2 to 1.

Landing Light opened at 7 to 2 and started at 100 to 30.

The most notable feature of the market movements was that backers of Istabraq would never have done better than the early 7 to 2 available with a couple of bookmakers. Supporters of Valiramix would, in contrast, have been best advised to wait as late as possible before putting down their money, or else just taking the starting price. Which all goes to show that there is no hard-and-fast system for always obtaining the best price. There are ways of improving your chances, though, and that is, in part, what this book is about.

In the event, those backing any or all of the three at the top of the market went home empty-handed. Valiramix was going easily when he stumbled, and tragically had to be destroyed. Istabraq was pulled up before the third hurdle. Landing Light finished fifth.

3.55 William Hill National Hunt Handicap Chase

The 3.55 was billed as a match between the Philip Hobbs-trained seven-year-old, *Gunther McBride*, ridden by Richard Johnson, and

the Martin Pipe-trained *Carryonharry*, partnered by Tony McCoy.

At the opening of the market on the morning of the race, the best price available about the Hobbs horse was 7 to 1, with Sportingodds, while Carryonharry was available in a place (Betabet) at 15 to 2.

Both these prices were better than was available on Betfair at 9.30 am, where the best price available about Gunther McBride was 6.6 to 1 (for £145), and the best about Carryonharry was 7 to 1 (for £256). Both these were consistent with the generally available prices at the time, albeit any winnings on the exchange were subject to a normal 5% deduction.

Those seeking to hedge the horses for a riskless potential profit were able, by the time the market had settled down at 11.30, to lay Gunther McBride (with Betfair) at 6.6 to 1 for £22, and at 6.8 to 1 for a further £168. Carryonharry could be laid with Betfair at 6.4 to 1 for £10, for a further £12 at 6.6 to 1, and at 7 to 1 up to £228.

By noon it was still possible to bet £70 on Gunther McBride at 7 to 1, and £129 on Carryonharry at 6.6 to 1, with Betdaq.

Both were available at better prices than would ever be offered on the course.

Gunther McBride opened at 6 to 1, and started as a 4 to 1 favourite. Carryonharry opened at 6 to 1 and went off at 5 to 1. Both lost, finishing 6th and 9th respectively.

4.30 Fulke Walwyn Kim Muir Challenge Cup Handicap Chase

The fourth Pricewise tip of the day was *No Discount*. Trained by Ted Walsh, the 8-year-old bay gelding was advised at 12 to 1 (available quite generally), to a proposed stake of 3 points to win.

This was a horse that was never to be longer in the market. Indeed, by 9.30 it was down to 10.5 to 1 with Betfair (for £114), and no better than 10 to 1 to anything more than tiny sums for the rest of the morning. There was absolutely no problem in laying the 11 to 1 to modest sums.

Meanwhile, the market favourite at the opening of business was The Bushkeeper, from the Nicky Henderson yard, available at a fairly general 6 to 1. The Bushkeeper lengthened on the Exchanges to a best of 6.6 to 1 at about 10.30, settling down at 6 to 1 thereafter.

On the course, The Bushkeeper opened at 5 to 1, started at 9 to 2, and won comfortably. No Discount showed nothing on the course, and fell two out when going nowhere.

5.05 Pertemps Final (Handicap Hurdle)

The final Pricewise tip of the day was *Calladine*. Trained by Christy Roche, and with Charlie Swan on board, the 6-year-old bay gelding was advised at a general 6 to 1 to a 2 point stake.

It was never better on the exchanges. By 9.30 am, the best price available on Betfair was 5.6 to 1 (for £5), at 5.4 to 1 for a further £50, and an additional £391 could be staked at 5.2 to 1. Simultaneously, it was possible to lay the horse at the original 6 to 1, to stakes up to £248.

By noon, the best price available on both Betfair and Betdaq was 5.2 to 1, for £486 and £602 respectively. Layers could take advantage of backers willing to stake £1776 at 5.5 to 1 with Betdaq.

On the course, Calladine was available at a steady 7 to 2 (with 4 to 1 in places), and went off at 7 to 2 favourite, after attracting bets of £3000 to win £12,000, £2500 to win £10,000, and four bets of £2000 to win £8000.

Calladine was badly hampered when making his challenge, and finished 14th of 24 starters.

By the end of the day, none of the Pricewise horses had yielded a return, though there were some opportunities to hedge at shorter prices than those advised on the exchanges. The on-course and starting prices about these selections were usually significantly shorter than the morning opening prices.

To a degree, the lessons of Cheltenham are atypical, since the market is so strong, and the information is so well known prior to raceday. On more usual days, a Pricewise tip will often lead to a marked and immediate shortening of the horse. In these circumstances, it may seem just a matter of backing the Pricewise horse to whatever the bookie will allow you and then hedging by laying it at a lower price in the Exchanges. The danger, of course, is when everyone else is trying to do the same thing. After all, to lay a horse successfully at a given price, someone must be willing to back it at that price, with you.

An example of a successful Pricewise punt along these lines came no later than the immediately following Saturday, at Uttoxeter. The selection this time, in the Marstons Pedigree Midlands Grand National Chase was *The Bunny Boiler*, advised at a general 8 to 1 (9 to 1 with Sunderlands) to a 1 point stake.

The favourite, This is Serious, was available at a best-priced 11 to 2.

In the event, the money came for the tipped horse, The Bunny Boiler.

By 10.30 am, the best price available about the beast was 7.4 to 1 (to a stake of £59) with Betfair. 7 to 1 was the best available with Betdaq, to £145. Those seeking to hedge could already make a potential risk-free profit by laying the Noel Meade horse at 7.6 to 1 (up to £315) with Betfair, and/or at 7.6 to 1 with Betdaq (up to £760).

By 11.30 more money was coming for the *Racing Post* selection, which was now best-priced with Betfair at 7.2 to 1 (to a total stake of £56) and at 7 to 1 for a further £549.

By 12.30 the best price, available with Betdaq, was just 6.6 to 1 (for £102).

Hedgers were able to lay The Bunny Boiler at 7 to 1 (for £904) with Betdaq, and it was even possible to lay it at 6.5 to 1 with GGBet, albeit to a single offer of £5.

The flow of money for the Pricewise horse was not matched in the enthusiasm for any of its rivals, and certainly not in the money chasing the favourite, This is Serious. Opening at a best-priced 11 to 2, it was soon available at 6 to 1 in the exchanges to sizeable sums, and longer still once the market had settled.

On the course, offers about This is Serious were less generous, however, and it maintained a steady 9 to 2, before starting at the same price. The Bunny Boiler duly opened at 6 to 1, shortened to its shortest ever 5 to 1 and trotted home, an easy 20-length victor.

The lesson of the week was that followers of Pricewise selections are usually best advised to get stuck in early, and to try to hedge in the exchanges once the market has settled down if so inclined. The Pricewise tip is also likely to be a better bet for those seeking to beat the starting price, or to hedge in the exchanges, if the market is not overly strong, and if the price on offer is not too generally available. Do not expect, though, to be allowed to stake as much as you want in such circumstances, or think that you will always be able to hedge your bet later in the day. Racing, like life, just ain't that easy.

Punters Beware!

The idea of betting with the bookmakers and hedging in the betting exchanges, highlighted above, exposes one potential trap into which

the unwary punter can so easily tread. This is courtesy of the 'palpable error' rule of which the slapdash bookmaker is so fond. An example, from my own recent experience, may best illustrate the trap.

On 11 May 2002, at 1.42 pm, I received the following e-mail from a source who shall remain anonymous.

> 'UKBetting.com have priced the Leeds v. Middlesbrough match incorrectly. For a 0 - 0 score they price it up as 10/1 – however, for no goalscorer they price it as 50/1. Take advantage of this … if you want you can lay off the bet at Betfair (0 - 0 is currently available at 17/1 to lay) producing a guaranteed profit.'

Ever the investigative reporter, I placed £50 on 'No Goalscorer' at 50/1 with UKBetting, but refrained from exposing myself to the potentially heavy liabilities I could have incurred by laying 0 – 0 at 17 to 1 in the exchanges.

The reason for my caution lay in the 'palpable error' rule. According to this rule, written into bookmakers' rules and regulations, prices set in error can be rescinded if the error is 'palpable'.

Turn now to Rules 14 and 15 of the UKBetting code for the detail.

> 'Rule 14: It is your responsibility to ensure that details of your bets are correct. Once you have confirmed your bet and it has been accepted by UKBetting.com then changes or cancellation will not be permitted.
>
> Rule 15: UKBetting.com will not allow nor accept responsibility for any palpable errors or omissions in respect of the posting of prices, elections (runners, players, teams, etc), times or results despite every effort to ensure complete accuracy. Notwithstanding Rule 14 above, we reserve the right to correct obvious errors (for example an incorrect price or voiding bets struck after an event is underway). The term 'incorrect price' means an error in inputting or reversal of the odds. In such cases, the client will be notified

and offered the option to cancel the bet. Where no instruction is received relevant bets will be settled at their correct odds.'

Now the danger is all too clear. Hedging the mythical 50 to 1 at that 17 to 1 in the exchanges is a potential road to the poorhouse.

Not wishing to place £50 on No Goalscorer at 10 to 1 (I could get it at 12 to 1 elsewhere if I was interested), I sent off the following e-mail to Customer Services at UKBetting (I could find no telephone contact number), timed at 2.17 pm.

'I have just placed a bet of £50 on No Goalscorer in the Leeds/ Middlesbrough game, at 50 to 1. Starts 3 pm today. I would not wish to place this stake if you are to invoke a palpable error rule on me if the bet is successful. Can you clarify the situation?'

At 2.38 pm came the response:

'Dear Sir,
All bets on No Goalscorer at the incorrect price of 50/1 have been voided (at 14.30) as this was a palpable error. The price should have been 10/1 as reflected in our Correct Score market. Your stake will be returned when the First Goalscorer market has been settled, at the conclusion of the game.'

Those who had laid the 0 – 0 in the exchanges at 17 to 1, in the expectation of a riskless profit, were left biting their nails and beyond.

One other point. 0 – 0 is not exactly the same as No Goalscorer. The difference is the way that 'own goals' are counted. They contribute to the scoreline, but not usually to the No Goalscorer market. 10 to 1, say, about No Goalscorer is to this extent better odds than 10 to 1 about a 0 – 0 scoreline, inasmuch as a 0 – 0 scoreline bet would lose in the event of an own goal.

This is only a general guideline, however. You should check the individual bookmaker's rules to be sure in any particular case.

BOOK PREVIEW
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Part Two: Beating The Bookmakers

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Chapter 1: Theory And Evidence

The key factor to consider when considering a profitable approach to betting with a bookmaker is that the bookie offers prices about many more eventualities than you are willing to bet upon. In other words, you have the luxury of picking and choosing between all the prices on offer. Similarly, you have the choice of picking among a significant number of bookmakers, all of whom are competing for your custom. Sometimes these prices are so disparate that it is possible, indeed, to bet on every possible outcome with different bookmakers and win whatever the result. Such circumstances do not last long, though, as there are plenty of people willing to swoop on such prices, with the effect of forcing them down to a less generous level.

There are, however, many less fleeting ways of tackling the bookmaker which can, if handled carefully, offer the opportunity of turning the odds in your favour.

Economists and statisticians have worked for over half a century seeking to identify these methods, through an examination of what are known as betting market 'inefficiencies' or 'anomalies'. What is meant by an 'inefficiency' in this sense is an opportunity to make a superior return by the use of a defined system or approach. There are a number of these inefficiencies, and we shall consider them each in turn.

First, though, we shall turn to perhaps the most well known, and certainly the most rigorously tested of them all. This is the so-called 'favourite – longshot' bias.

The Favourite – Longshot Bias

The idea of a so-called favourite – longshot bias at the racetrack was first identified in 1949 by Richard M. Griffith, a psychologist based at the Veterans Administration Hospital in Lexington, Kentucky.

Griffith examined the odds available about thousands of horses running at US racetracks, and catalogued where each of these finished. The results of his research were astonishing at the time, and were soon accepted for publication in the *American Journal of Psychology*. What he found was that the shorter the odds at which a

horse started the race, the better on average the value. In other words, those who systematically bet on the favourite (the horse with the shortest odds) would over the long-term win more, or at least lose less, than those backing any other horse or horses in the field.

This was a startling discovery, because it suggested that it was possible to earn above-average returns by following a simple betting system, which required no knowledge of anything other than the available odds.

This discovery was significant not only for horse race bettors (obviously) but also for economists. After all, how could this loophole exist?

To the betting public, and that included quite a few economists and statisticians, the most important thing to find out was whether Griffith was right, and this meant collecting lots more data, from different racetracks and at different time periods. Amazingly, study after study came up with the same findings. The favourite – longshot bias is indeed real.

In the subsequent fifty years and more, only one significant US investigation has indicated otherwise, and that solely for the case of one atypical, relatively small US racetrack.

In a way, this is not surprising, since laboratory experiments dating back to a classic study by Preston and Baratta in 1948 all point in the same direction. These experiments all found evidence of a systematic tendency by subjects (under controlled conditions) to relatively underbet or undervalue events characterised by high probability (short odds), and to relatively overbet or overvalue those with low probability (long odds).

Wayne Snyder, writing in 1978, surveyed all the work to that date which had looked at US racetrack betting, and concluded that there was indeed a strong bias which made bets on favourites much better value than bets on longshots. The problem was that the bias was not big enough to cover the deductions from bets levied by the operators of the American Tote-only ('parimutuel') system.

A subsequent classic US study, undertaken by Richard Thaler and William Ziemba in 1988 was a little more optimistic (from the punter's point of view). While they confirmed that track deductions were too large to make bets on the aggregate of short-priced favourites profitable, they found that such a strategy was profitable at odds of

3 to 10 or shorter, i.e. very short odds. 3 to 10 means that a punter would have to stake £10 to win £3, with the stake to a winning bet returned.

The problem with the US studies is that they are confined to the system prevalent in that country, i.e. a Tote monopoly.

Those seeking to turn an honest profit from their betting activities in the UK faced a very different environment. Both bookmakers and the Tote were available on-course, and competed for the punter's money. It was not long before attention was turned to the existence of a favourite – longshot bias at bookmaker odds.

A pioneering study was undertaken in 1951 by E. Lennox Figgis in his book, *Focus on Gambling*. This and subsequent studies by Figgis, were to become so influential that they were quoted in the final report of the 1978 Royal Commission on Gambling. The favourite – longshot bias was alive and well in the UK, at the odds quoted by bookmakers.

The way that Figgis conducted his studies was to collect data on the starting prices of the horses. The SPs, as they are called, are the independently determined assessment (by professional assessors at the track) of the general price at which a bet could have been placed on a horse with course bookmakers at the start of the race. Most off-course bets are settled at this price.

Figgis' evidence on SPs collected for races run in 1950, 1965 and 1973 demonstrated that for the shortest odds examined, i.e. 2 to 5 (£5 to win £2, with the stake to a winning bet returned), the average pre-tax return varied from 97.2% in 1950 to 108.1% in 1965 to 108.5% in 1973. Calculations of the returns in 1975 and 1976, performed for the Royal Commission on Gambling, found rates of return of 112.1% and 107% respectively. In other words, in four of the five years examined, betting on all horses starting at the shortest odds examined would have yielded a very healthy pre-tax profit.

To pay for this healthy profit, it is inevitable that other punters are losing in an unhealthy way. If they were not, the bookies would be out of business. The big-time losers, Figgis found, were those who backed the longshots (horses starting at long odds). His calculations for the longest odds range, i.e. 20 to 1 and longer, proved the point. The average returns varied from as little as 23.8% in 1950 to 37.3% in 1965 to 23.2% in 1973. These low returns to longshots

were in line with the USA findings, although much more pronounced in extent.

Over all odds ranges, the average return was about 80%, i.e. a 20% loss to all money staked.

It was, however, Jack Dowie who first brought these ideas to the notice of the academic world with a path-breaking article published in the journal *Economica* in 1976.

Dowie calculated the expected return to bets paced on horses starting at each of a wide variety of starting prices for the 1973 flat season. His sample of 2777 races revealed evidence of a significant longshot bias, to the extent that a pre-tax profit could have been made by betting on all horses starting at 4 to 6 or shorter. Again, the return to longshots (especially extreme longshots) was far worse in extent than that reported for US racetrack betting markets. The same study also showed that bets, to level stakes, on all horses returned at 1 to 2 or shorter would have provided a pre-tax profit of 9.3 per cent. That's to a blind strategy of betting on each and every case, and doesn't even allow for the fact that it is often possible to beat the starting price.

Robert Henery was another to wade in, with his examination, published in 1985 in the *Journal of the Royal Statistical Society*, of 883 races run in 1979 and 1980. The average return to a unit stake was calculated over various odds ranges, demonstrating a return of 97.9% to bets on all horses starting at 2 to 5 or shorter, but only 10% to horses starting longer than 38 to 1.

Confirmation of the findings of the academic studies was provided, interestingly enough, in the *Ladbrokes Pocket Companion*, Flat Edition, for 1990. The findings covered the flat racing seasons from 1985 to 1989. As expected, bets at shorter odds provided much better returns than at longer odds. Indeed, the results suggested a positive rate of return to a strategy involving the consistent placing of bets on horses which started at odds of 1 to 2 or shorter. Of 344 horses starting at odds between 1 to 2 and 1 to 5, 249 won, giving a profit of 0.52% if the same stake (level stakes) was placed on every single runner in this category. There were 96 examples of horses starting as even hotter favourites (between 1 to 5 and 1 to 25). Of these, 88 won, for a level stakes profit of 6.5%. Of the 35 favourites who went off at odds of 1 to 8 or shorter, all won.

At the other end of the spectrum, longshots starting at 25 to 1 won just once out of 52 occasions, and level stake bets on all horses starting between 25 to 1 and 100 to 1 would have produced a loss of 67.76% of everything staked (43,426 runs, just 441 winners).

The following table, reproduced from the *Ladbrokes Pocket Companion*, clearly shows the nature of the bias against longshots.

Odds	Wins	Runs	Lev. stakes	% profit
1/5 to 1/2	249	344	+ £1 - 80	+ 0.52%
4/7 to 5/4	881	1780	- £82 - 60	- 4.64%
6/4 to 3/1	2187	7774	- £629 - 00	- 8.09%
7/2 to 6/1	3464	21681	- £2237 - 00	- 10.32%
8/1 to 20/1	2566	53741	- £19823 - 00	- 36.89%
25/1 to 100/1	441	43426	- £29424 - 00	- 67.76%

Source: *Ladbrokes Pocket Companion*, 1990 Flat Edition

Before you start trotting around the globe armed with this knowledge of how to blunt the odds against you, beware of one place where all is not what one might expect. I refer to the Happy Valley and Sha Tin racetracks of Hong Kong where betting on the horses seems to be not so much a hobby as a mad passion.

Studies, covering 5343 races, published by Kelly Busche and Christopher Hall (1988), have shown that the traditional favourite – longshot bias just doesn't exist over there. The same also seems to go for Japan. Why so? Do all the shrewdies live in the Far East, or make their way there on the first available flight? Nobody knows for sure, although theories abound. One of the most popular explanations is that the Tote pools are so big that it pays professional gamblers to set up shop with the most sophisticated data processing models. They then use these models to mop up the money placed in the pool by mug punters so silly as to overbet the longshots. This brings the odds into line with the true probabilities, and eliminates the bias. Unlike bookmakers, the pool operator is happy to pay them and pay them again, using the money put into the pool by less astute race fans.

So much for Hong Kong. Over here, things are very different, and no doubt the majority of punters will continue for some time to

line the bookies' pockets, taking that 20 to 1 about the 50 to 1 chance!

So much for the horses, but how about the dogs? To answer this, you need look no further than the work of Michael Cain, David Law and David Peel, who demonstrated the same bias at the dog track in a 1996 study. Because of the size of the bookmakers' margins, however, they were unable to translate their findings into a strategy capable of yielding positive profits.

So the evidence is overwhelming. A consistent strategy of betting on horses starting at shorter odds will yield a better return than betting at longer odds. Indeed, for the UK at least, and in at least one study in the USA, it appears that a policy of betting all the shortest odds good things could, over certain past seasons, have yielded a pre-tax profit.

Academics differ about what causes the affliction to longshot-backers, but all are agreed that it exists. What isn't so well documented is whether the same applies to football.

Only two published studies looked specifically and uniquely at football in this context, the most recent being published in the February, 2000 edition of the *Scottish Journal of Political Economy*. Despite the title of the journal, the investigation is based on the English Premier League. This study, entitled 'The favourite – longshot bias and market efficiency in UK football betting' provides convincing evidence that what applies to racing applies also to football.

The key finding is that the odds available with fixed-odds bookmakers about very short odds-on favourites provides a significantly superior return on average than do the odds available about longshots. In other words, the traditional favourite – longshot bias is alive and kicking on the football pitch, which means that if you know nothing else about football, your best bet is to back the favourite.

Among correct score odds, the best value, according to the study, appears to lie in backing very short-priced favourites to win by a score of 1 – 0, 2 – 0, 2 – 1 or 3 – 2.

These findings confirm an analysis written in 1998, co-authored by myself and David Paton. That analysis, published in the journal, *Applied Economics Letters*, suggests that the longer the odds about a team playing in an English Premiership football match, the lower

the return, on average, to a bet on that team, and that this pattern persists at all odds level. In other words, when betting on football, shorter odds tend to represent better value.

That sums up the evidence for horse racing, greyhound racing and football, but what about all the other sports out there? Well, fortunately for us, Cain, Law and Peel have yet again come to the rescue with an article in the *Bulletin of Economic Research*.

Their data set consisted of the odds and results for 50 boxing matches, 132 Sunday League cricket matches, 647 snooker matches and 91 tennis matches at the Wimbledon championships. For good measure, they also looked at 24,603 US baseball games.

Their results confirmed the existence of the usual bias in favour of backing favourites for all the other sports, including baseball. Indeed, a system based on backing strong favourites (roughly defined as 1 to 2 or shorter) would have generated, in the case of boxing and cricket, pre-tax profits ranging from 12% to 16%.

There you have it then – the evidence from a series of studies spanning half a century. If you know nothing else, a blind strategy of betting on favourites would have yielded a much better return than betting on any other outcome, and the shorter-priced the favourite the better. Indeed, in some studies, such a strategy, at very short odds, would have produced a significant profit.

Be careful, though, before sprinting off, armed with all this information, to back a series of short-priced favourites. Statistics, after all, work only in the long-run, or on the average. In the long run, of course, we are all dead. The art of turning the advantage you may have gleaned from the evidence you are starting to accumulate will be the subject of our next chapter.

Chapter 2: How To Bet When The Odds Are In Your Favour

The previous chapter showed how, by betting on short-odds favourites, you can in certain circumstances turn the odds in your favour. Much of the rest of this book will be about helping you to identify other ways of turning the odds in your favour, or identifying those times when they already are. This is the concept of *value*, and it has never been more prevalent than in the cut-throat world of modern bookmaking.

In this chapter, we will look at the best approach when you spot value. In particular, how do you turn the advantage into secure long-term profits? Note the two words – *secure* and *profits* – in other words, risk and reward.

An example will explain.

Let's say that a kindly bookmaker offers you 11 to 10 about a coin landing heads up. This offer means that if you call heads you win £11 if the coin turns up heads, but you lose £10 if it turns up tails. Assuming it's a fair coin, you might not be too averse to a piece of the action. After all, half the time you can expect to win £11 and half the time to lose £10. Over a period of time, you cannot but make a profit.

The problem of course, is that what will happen in the long run does not always happen right away. Indeed, it might be a long time indeed before you are able to turn the theoretical edge in your favour into a deeper bulge in your money pocket than you started out with.

That, of course, is the way with the real world. You just can't trust it to behave as it should, however much the odds are shaded to your advantage. As I said before, in the long run we're all dead, and unless we're careful we may go bankrupt on the way!

Of course, the generous bookmaker will, on average, lose at his quote of 11 to 10, but along the way your bankruptcy could spell his fortune.

The likelihood of bankruptcy engulfing you before you can turn theoretical into practical advantage depends, naturally, on your stake. Thus if you bet just a single penny each time an honest coin

twists in the air at 11 to 10, you are free from the worry of imminent doom, but you are hardly likely to get rich in the process.

If, on the other hand, you wager half your gross income because the odds are in your favour, you are likely to win rather more, but you're also more likely to have that run-in with those unforgiving bailiffs. Just try explaining to them how that 11 to 10 really was very good value about the flip of a very small coin.

So what should you do when you spot value? Fortunately, John Kelly has provided us with just the answer. His so-called Kelly criterion tells you exactly how much to stake on favourable bets in order to maximise your fortune without sacrificing your peace of mind.

The mathematical details are a little complex, but the essential conclusion of his analysis is clear enough. The Kelly strategy for maximising long-term average capital growth is to wager a proportion of your assets equivalent to your advantage at the available odds.

For example, if you are offered evens about a bent coin coming up 'heads', and you happen to know that it has an exactly 60% chance of landing just that way up, what is your advantage? Well, it's 20%, i.e. a 60% chance of heads (you win) minus a 40% chance of tails (you lose). The Kelly formula in these circumstances advises a stake of 20% of your 'fortune' on heads. By the way, for practical purposes it may be more prudent to substitute 'betting bank' for 'fortune.' The same, of course, applies to any event where you calculate the advantage to be 20% in your favour.

Now, what would Kelly say about the outcome of a toss of that two-headed coin you've kept for a rainy day? Well, with a 100 per cent chance of a head, and absolutely no chance of a tail, your advantage in betting heads, however short the odds, is a whole 100 per cent. It's a clear case of betting your 'bottom dollar'; it's mortgage the house time. After all, you can't lose, can you? Can you? Yes, you can! In the real world, even a double-headed coin can turn up tails. Stake accordingly!

Chapter 3: Should You Follow The Market?

It was available at 20 to 1 with the bookmakers on the morning of the race. On the course the first price the bookies offered about it was 10 to 1. Now, a couple of minutes before the 'off', it stands at 5 to 1. This is the classic case of the so-called 'steamer'.

So you failed to get on at the best price, by quite a margin. But what do you do now? Do you curse your bad fortune (or bad judgement) in missing the 'value', or do you knock over the bookies' boards in a headlong rush to grab a piece of the action before the beast turns an unhealthy shade of odds-on? If only there was a way of gauging just how much heat is left in these steamers, wouldn't life be so much easier?

Enter the professional economist, a big database and a bag of statistical tools. The task is then relatively straightforward. First, input all the early prices on the morning of the relevant races, then all the opening prices in the on-course market, and finally all the changes in the prices before the eventual declaration of an official starting price. All you then need do is record which horse won.

For the UK, the pioneer of this sort of work was Nicholas Crafts, who in 1985 published an influential article in the journal *Economica*. The article, entitled 'Some evidence of insider knowledge in horse race betting in Britain', generated some fascinating results.

Crafts' starting point was the idea that there is an element of the betting population who know more about a particular race than the bookmakers. These people he terms 'insiders'. These insiders, he argued, were able to take advantage of movements in the odds during the course of the day to bet at odds greater than the starting price. Although this is not an option in a Tote-only system, it is in a bookmaking system, where bettors can 'take a price' at any time while the market is open.

Crafts reasoned that a marked shortening of the odds available about a horse during the course of the day may indicate evidence of insiders who knew that the probability of that horse winning was greater than that implied in the early odds.

He first looked at the prices at which the horses were forecast to start their race. These so-called 'forecast prices' are published in the newspapers, and Crafts used the forecasts of the leading racing newspaper of the day, the *Sporting Life*. He also looked for significant movements in the on-course market as well.

His data set consisted of 16,769 runners in total, over a period from 11 September 1982 to 8 January 1983. He tested various definitions of a marked movement in the odds, for example a definition based on the starting price being half as big as the opening price (5 to 1 from 10 to 1, say). In order to isolate races which might be the target of above-average levels of insider activity, Crafts divided the sample into handicaps and non-handicaps, the idea being that these are distinguished by the amount of established public form available about them.

In handicap races, horses are weighted on the basis of past form, which must be established over a series of races, in an attempt to equalise, as far as possible, the chances of all the horses in the race. Such races are less likely, therefore, to offer as much scope for those in the know to trade profitably as non-handicap races, where the form need not be so exposed to public scrutiny.

Crafts' results suggest that horses that display a marked shortening in their odds are indeed characterised by an exceptionally high expected return at forecast prices. Moreover, this is particularly strong for non-handicap races.

An examination of the scope for making similar profits during the formation of starting price odds in the actual on-course market produced similar findings, although splitting the sample as before (into handicap and non-handicaps) failed to reproduce the earlier result.

Crafts offered supporting evidence in descriptions of betting patterns, published in the *Sporting Life*, about patterns of on-course trading. In particular, he identified examples of large sums of money placed on horses with poor previous form, the odds about which went on to shorten up considerably and to win.

These results were so significant, if true, that I decided to see if they applied to a totally new set of races, for which I personally collected data. The results of my research were subsequently published in the book, *The Current State of Economic Science* in 1999. My data set was drawn from all standard flat races in the UK from

March 19 to May 16, 1992, with one additional category added, of higher-grade handicaps, which excludes both non-handicaps and lower-grade handicaps. As higher-grade handicaps are the subject of particular public attention and scrutiny, it would seem unlikely that they, in particular, offer much scope for the profitable use of private information.

My results were broadly in line with Crafts' own findings. For the sample of horses that showed the most marked shortening between forecast and starting prices (the price halved or more), the expected return at forecast prices was particularly high for non-handicap races and lower-grade handicaps. The same pattern was found for the sample of races showing a marked shortening between the longest price available in the on-course market and the starting price.

So one thing seems true for sure. Horses which shorten significantly in the market are a great bet, at the original price. Indeed, if you don't make a healthy profit at these prices, you're doing something mighty wrong.

So horses which shorten significantly in the market are a great bet, at the original price, particularly in certain types of race. If so, what's the problem? Indeed, is there a problem? Of course there is. The original price has probably long gone by the time you spot what good value it was. If only you could ask your friendly layer for the 'best price', rather than the current (board) price, or the starting price. But don't lose heart just yet, for even at starting price the published evidence suggests that steamers still represent relatively good value, and particularly so if you are selective in your choice of bets. Let me explain.

A horse which shortens is likely to represent a better bet, at any given price, than one which does not. For example, a horse which shortens from 10 to 1 to 5 to 1 represents better value, even at the 5 to 1, than an equivalent animal which had always been available at 5 to 1. It represents even better value than another horse which had previously been offered at, say, 3 to 1 before drifting out to 5 to 1. That's the good news.

The bad news is that the final price is, on average, not good enough to translate this observation into a profitable long-term betting strategy. By backing the steamers at their starting price, all you can expect, on average, is to lose rather less than you would by backing

horses whose odds do not shorten in the same way.

You can help your cause, however, if you are selective. To understand this, we need to turn again to Professor Crafts, and a follow-up article which he published in 1994 in a book called, *The Efficiency of Racetrack Betting Markets*. In that article, Crafts built upon his earlier work by identifying a category of horses which had not run for a long time (the season before last, to be precise). As in his 1985 paper, he used the existence of a 'marked' shortening of the odds about a horse (defined as the forecast price being at least one and a half times as big as the starting price, say 9 to 1 compared to 6 to 1) to indicate insider activity. He also eliminated from his sample all horses starting at odds of 7 to 1 or greater, presumably since these longer-priced horses are on average less profitable to follow than those starting at a shorter price (see chapter 4 for more on this favourite-longshot bias).

The reasoning behind looking at horses returning after a long layoff is that these are the very horses about which inside knowledge is likely to be the most valuable. In particular, they may not have been seen on a racecourse for months, but someone, somewhere has seen them, and if sizeable sums are going down, you might be wise to pay attention. Moreover, it may be especially significant because those who are not 'in the know' are unlikely to be risking hefty sums about these dark entities. So what's the evidence?

Crafts identified 88 horses over a period between September 1982 and November 1987, which had shortened markedly according to his definition. Backing all of these at forecast prices would have yielded a rate of return on stakes of a massive 261.9%, and a rate of return even at starting price of a very healthy 55.8%.

The implication of these findings is not difficult to spot. A good strategy for those not privy to any inside information about horses returning after a long layoff would be to follow the money. Indeed, such a strategy would have doubled your money even at starting price.

The theory makes sense, and the results support the theory. Still, 88 observations do not constitute a large sample, at least not in a statistical sense. So before you mortgage the house on the nag that hasn't been out of the stables since you last cleaned out your local bookie, a word of caution. One study doesn't make a system. Not necessarily, anyway. Ultimately, though, it's for you to decide whether and when it's all just hot air.

Chapter 4: Was The Steamer Value At The Off?

It was the day before Halloween and it provided a nightmare for bookmakers, courtesy of a horse called Tayseer. Normally, a sponsored handicap like the Ladbroke Autumn Stakes Showcase Handicap at Newmarket is a bookies' benefit. With 19 runners going to post, the bookmakers' notional margin (or over-round, as it is known) stood at a full 133%. This is equivalent to a two-horse field in which one horse is offered at evens and the other at a shade worse than 1 to 4. Hardly attractive pricing when stated like this, but much less off-putting when spread among 19 contenders. As a handicap, the form of the horses is relatively exposed, and they are supposedly weighted so as to equalise as far as possible their chances of winning. This should make the selection of a winner, in theory at least, that bit more difficult as well.

Compare the preceding race on the card, the Ben Marshall Stakes. This Class A Listed race featured only eight runners and an 'over-round' of just 8%. As a non-handicap there was also no artificial attempt to produce some sort of dead heat.

In the event, the Autumn Stakes Handicap delivered handsomely to those smart enough to follow the money, and particularly so to those who placed the early money that was followed. The facts are these. Tayseer opened in the offices at 5 to 1 generally, and at 11 to 2 with one credit bookmaker. On the back of some well-publicised tips, these prices were quickly taken, and within a very few minutes the price available on the telephone had plummeted to as low as 2 to 1. To limited stakes, the higher prices were still available for a while longer in the licensed outlets of various bookmakers. The key question remains. Is there still value in the price available at the off?

Tayseer opened on course at 2 to 1, touched 9 to 4 in places, and was returned at 15 to 8. In retrospect this was a good price, but any price is a good price when the horse is past the post and the connections are celebrating. Whether it was value at the time is a question that has been addressed more generally in the preceding chapter of this book. There we came across evidence that these so-

called 'steamers' are particularly good value when they occur in non-handicaps, and/or where the form is not well established or out of date. The value also tends to be concentrated at prices below 8 to 1 or so. Of these criteria, the Tayseer phenomenon passed only the price test. All we could expect in such circumstances, judged on the published evidence, is a lower loss on average than if you were to back horses that have not shortened. Of course, at the original price, or even at a range of prices on the way down, the potential for a genuine value bet remains. At any price, the key to obtaining value is a well-placed belief that the price is set to fall or to fall further than it has already done. On that basis, Tayseer was value, but not, without the benefit of hindsight, at the off.

Fast forward now to the 2002 Guineas meeting, and '2000 Guineas' day.

While most eyes were on the big race, an unusual confluence of tipping interest focused instead on the outcome of the 3.15 at Newmarket, the Class C Labrokes.com Handicap. The interest centred on the *Racing Post*'s Pricewise and Betting Bureau columns, both of which highlighted the Akehurst-trained 8-year-old Marsad, carrying second top weight, a tip also featured on one of the biggest private forecasting services in the land.

In a 30-horse field, Marsad was on offer ostensibly at 22 to 1 with Stanley, and 20 to 1 with Coral and William Hill. Within minutes, the best available was 14 to 1, and by the opening of the market 10 to 1 was the going price. Despite a single biggest recorded bet of £300 at that price, the odds duly plummeted to 11 to 2 by the off, thanks in no small part to bookmakers backing the horse on-course to limit their liabilities.

Marsad flew home and the lesson of this tale is clear. When a horse is heavily tipped, at least by respected tipsters, it is likely to shorten. If you have missed the price, there may still be value at all prices down to that available at the off. As it happens, this time the nominated horse landed the gamble.

Move forward now just three days to the opening of the Chester meeting. Similar Pricewise interest led to copycat plunges on two horses (Northern Desert and The Glen in the 2.25 and 3.25 respectively), if not of quite such spectacular proportions. This time the gambles were foiled.

The reality was the same in both cases. By the off, the price will have reflected more or less the genuine chance of the beast. At a succession of prices on the way down the price was probably, on the basis of known information, on the generous side.

Win or lose, that's the lesson to be learned for those seeking long-term profitability.

Chapter 5: The Right Shape

Sometimes an event has a shape about it that just cries out, 'Bet on me!' Let me give you an example which provides lessons that can be used time and again.

The race in question, held at Aintree, at 4.20 on the afternoon of Thursday, 5 April 2001, was the Class A Glenlivet Anniversary Novices Hurdle for 4-year-olds, a 14-runner race in which two of the contenders, Azertyuiop and Bilboa, stood out like shining beacons in the pack. At best early prices, you could have picked up 2 to 1 about either of them, with a generally available 10 to 1 about their nearest rival. A level pound on each would, as such, have yielded a net profit of one pound if either won for the risk of a two pound stake, i.e. odds of 1 to 2 about one or other of the two beacons flashing first past the post.

Conventional betting theory points in one direction in these circumstances, and that is in the direction of taking one or other, or both. The reason lies in the 'favourite – longshot' bias, which indicates that, on average, a bet at longer odds is worse value than a bet at shorter odds. This kicks in especially forcefully at odds above 7 to 1 or so, and in larger fields.

Take all this together, and those without special access to information, or special skills at processing that information, are looking for a race with one or two solid favourites, and a host of longshots. Where better to look than a race like the Glenlivet Hurdle?

I say one or two solid favourites, but ideally we are looking for two. The reason for this lies in the weight of evidence which shows that horses that contract in the betting are particularly good value, even at their new shorter price, while those that lengthen are relatively poor value, even at their new longer price.

The stand-off between Adrian Maguire, on board Azertyuiop, and Thierry Doumen, astride Bilboa, fits the criteria, therefore, for establishing value. It had what I like to call the right odds shape.

Once the two horses had been identified, to fit the final piece of the jigsaw meant a judicious wait for the on-course money to send its own message. In the event, both horses opened at 2 to 1, followed swiftly by a single bet of £5000 to win £10,000, two bets of £4000 to

win £8000, and three of £2000 to win £4000. All of these were on Bilboa. Not a drop of big money was seen on Azertyuiop until he had lengthened to 5 to 2. Meanwhile, even at 7 to 4 the new favourite continued to attract two bets of £2000 apiece.

At the time, of course, those sitting at home had no way of knowing the exact nature of the trades, but the market told its own tale. By the time that Bilboa had contracted to 7 to 4, the signal to act had arrived. It would never represent better value, given the available information. Perhaps those cross-checking with the spreads could have done even better. Either way, the nod was given Bilboa's way.

In the event, the French-trained filly never looked in doubt, as she jumped accurately and effortlessly, before leaving her rivals trailing in her wake for a 21-length victory.

So there we have it. Two standout favourites in a decent-sized race, one of whom eventually attracts the smart money.

In the world of markets and odds, life doesn't come much more shapely than that!

Chapter 6: The Gambler's Fallacy

You've tossed a coin and it's come up heads. You've spun the roulette wheel and it's landed on black. What will happen when you next toss that coin or spin that wheel? It's 50 – 50, heads or tails, just as it remains 50 – 50 red or black. If the bookie offers you evens, that's a fair bet. Anything more and you can't lose in the long run, unless you have good reason to believe that the coin is bent or the wheel is fixed.

That's the theory and that's the logic. All the evidence suggests, however, that real people, and real gamblers in particular, throw all the laws of probability out of the window when it comes to crunch time. They suffer from what psychologists and economists like to call the *gambler's fallacy*.

Those who have been exposed to the gambler's fallacy think that because an event has just occurred, it is less likely than before to happen again. Take that coin that just landed head side up. The afflicted now believe that tails is just that little bit more likely next time than heads. If they've been exposed to a sufficiently strong dose of the fallacy, they might even snub the 11 to 10 being offered about heads next flip. The longer the run goes on, the more sure they are that it's time things changed. 'Four reds in a row, it's time for a black!' is an all too familiar cry.

The good news for the virus-free is that other people's misperceptions offer a clear-cut opportunity for gain.

One of the best examples is catalogued by Dek Terrell, of Kansas State University, in an article published in 1994 in the *Journal of Risk and Uncertainty*. Terrell defines the gambler's fallacy thus:

> 'The "gambler's fallacy" is the belief that the probability of an event is decreased when the event has occurred recently, even though the probability of the event is objectively known to be independent across trials.'

To test for the existence of such a fallacy, Terrell looked to evidence from 1785 daily drawings of the New Jersey State Lottery between 1988 and 1993. His idea was to study what happened to numbers that came up twice in a short period of time, specifically a cut-off

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period of 60 days. Now, the New Jersey Lottery pays out to winners a share of the pool of all bets, so a higher payout implies that fewer people chose that number. If the gambler's fallacy applied to the New Jersey Lottery, we would expect the payout to increase if a number appears twice in a short period of time. This is because people would be less likely, on average, to choose a particular number after it has just been drawn. This means a bigger payout if these numbers do crop up because there are fewer winners to share the pool.

Terrell's results confirmed what advocates of the gambler's fallacy had always thought. Numbers which repeated within a 60-day period had a higher payout than when they won previously on 80 of the 97 occasions when this happened. Moreover, the more quickly the numbers repeated, the greater was the effect. To be precise, Terrell found that the expected payout on a number that repeated increased by 28% one day after winning. Therafter it decreased from this level by about half a per cent each day after the number won, returning to the original payout level (as if nothing had happened) after 60 days or so. In other words, the effects of the gambler's fallacy virus lasted a couple of months in New Jersey.

Interestingly, Charles Clotfelter and Philip Cook, writing in the journal *Management Science* in 1993, identified a similar, albeit stronger effect, in the fixed-odds Maryland Lottery.

The fallacy really does seem to get everywhere, at least in the lottery world. How about horse race betting?

Well, just for a moment let your imagination lead you to the track. It is a balmy summer's afternoon, and you are prowling the paddock in search of the winner of the fourth on the card? The fourth? Yes, you already have your head down. After all, you just knew the favourite was going to win the first race, but at the last moment that healthy 8 to 1 about your second choice got the better of you.

Still, how on earth could you have been so stupid as to miss that good thing in the second as well? Once – well, accidents happen. But twice – now that's carelessness. Never mind, you tell yourself, you wouldn't have won much anyway. Still, that doesn't explain why you missed the too-good-to-be-true 9 to 2 on offer about the favourite in the third. What now? Well, you really do fancy that short-priced animal in the next, and have come ready to turn over the men with the satchels with one big thump. Hold on a minute,

though, what's the chance of four jollies in a row? That would be enough to cause a grown bookie to cry – and how often have you seen such a sight? All of a sudden, that longshot doesn't look such bad value after all. If you are starting to think this way, you will be able to spot the onset of the first symptoms of gambler's fallacy. If it's happened before, it's just that little bit less likely to happen again, or so you think – that's the nature of the fallacy. Which brings us to the real question. What is the truth of the matter with respect to a run of winning favourites? Fortunately, Mary Ann Metzger, of the University of Maryland, has done the work, examining betting patterns in 12,316 races. Her findings make interesting reading.

Metzger's study, published in 1985 in the journal, *Psychological Reports*, is still the largest investigation to date of this issue, albeit confined as it is to the US racetrack. In total, she examined 12,316 races, her results confirming that racetrack bettors are indeed misled by the outcome of previous races. The single most interesting conclusion of the study is that in those cases where two or three successive favourites won back to back, the betting public tended to avoid the favourite in the subsequent race like the plague. As a result, the odds tended to lengthen about these 'good things', making them exceptional value. The simple fact was that punters on the whole were disinclined to believe that a run of favourites would persist, and so staked relatively little money on that eventuality. This caused the favourite's odds to lengthen to a generous degree after a run of winning favourites. Similarly, she found evidence that favourites turned out to represent exceptionally poor value after a run of losing favourites. In this case, punters were on the whole far too ready to believe that it was time for a favourite to turn up, and so put too much on the favourite, causing its odds to plummet.

If true, one could do rather worse than wait for a couple of winning favourites, before neatly stepping in to pick up the 3 to 1 on offer about that genuine 2 to 1 shot.

The truth, it seems, is that favourites really can keep on winning, and the longer it goes on, the better value they become.

A complementary analysis of betting trends looks at a run of wins by dogs emerging from a particular trap. You know the scenario. Trap 4 wins the first race, and the second and the third. Quick, get on the 4 dog, we all cry – or do we? In fact, we do not, just as

advocates of the gambler's fallacy would expect. Instead, as shown in a classic study, most of us do just the opposite.

The study in question, published in 1996 in the *Economic Journal*, by Dek Terrell and Amy Farmer (of the University of Tennessee), focused on greyhounds running at the Woodlands Greyhound Park, in Kansas City. The hypothesis Terrell and Farmer put forward was based around a strategy of betting on the greyhound in the trap that was occupied by the previous winner. Their reasoning was simple. If dog track punters were as open to the gambler's fallacy as the rest of the betting public, one might expect them, on average, to shun the trap that had just produced the winner. After all, it's all about underestimating the likelihood of the same thing happening twice. The test they conducted was to calculate the return to a strategy of betting on every greyhound emerging from the trap occupied by the winner of the previous race. In the USA the racetrack is Tote-only, so any dip in the popularity of a particular dog would be sure to translate into an improved payout for those punters going against the crowd.

In a study of 3,795 races at Woodlands, Terrell and Farmer found that such a policy was in fact the best strategy available. More than that, it was a profitable strategy, yielding a profit of 9% to a policy of blind obedience to such a simple system, even after deductions.

Will it work for you? Short of a trip across a wide ocean, we can't be sure, but it certainly gives us pause for thought.

In summary, then, there is some convincing evidence of the existence of a gambler's fallacy, at least in the USA, and unless the British have built up a special resistance to it, there may be a lot worse ways of working out our lottery numbers for the coming week. Just include a few that came up last week, or even the week before. It won't increase your chances of winning, but it might (taken with a healthy dose of salt) allow you to add the multi-prefix to your millions.

On a more realistic plane, these ideas can be applied to any number of markets, ranging from the choice of dog trap at Monmore to the decision as to whether to back the favourite in the third at Royal Ascot. Study the established form, be aware of the instincts of the crowd, and don't overreact. And remember the laws of probability – the next time the house cleans up with a zero on the roulette wheel ten times in a row, it's no more and no less likely to come up zero next time than it is to land on your favourite number. On the other hand, you might have a bent wheel!

Chapter 7: Do Multiple Bets Make Sense?

You have only a vague idea how much you'll win if your predictions turn out to be dead on the mark, you'll lose a lot more on average than by blindly backing favourites, and you simply can't shop around for a better price. No, I'm not talking about the National Lottery, but the Computer Straight Forecast. The bookies absolutely love it, which is no surprise, but so do many punters. Why, and what are the facts?

The CSF (or Computer Straight Forecast) is a bet designed for those who think they can predict the first two animals past the post, in the correct order. The payout is not announced until after the event, and is based on an esoteric computerised formula, which includes starting prices, number of runners, and a number of other less obvious factors. Of course, if you are clever or fortunate enough to solve the puzzle, you stand to earn a tidy sum, especially if on all known form there was no earthly reason why the beasts should have bothered to turn up at all.

Still, you'd have earned a rather tidier sum if you came up with the six Lotto numbers drawn each week, but that's not enough to make it a good bet.

The problem with CSF bets is that unlike single bets, settled at the starting price determined by trading on the racecourse, there is no equivalent competitive process in arriving at the computerised odds. Thus, although bookmakers are at liberty to set odds on forecast bets, in practice the payout is almost always determined in accordance with a national formula, which is determined by the industry. In other words, bookmakers in the UK explicitly co-ordinate the prices of CSF bets. The potential implications of this pricing strategy are clear. Even if the prices for single bets are close to competitive prices, the industry may build in an extra markup into its pricing formula for CSFs.

The only real competition for this type of bet is the Exacta offered by the Tote, which is their equivalent. Prior to the existence of the Exacta the Tote offered a similar, but slightly different rival called

the Dual Forecast. This bet, like the CSF, required punters to select the first two horses past the post. However, unlike the CSF, the Dual Forecast did not require the correct finishing order to be specified. There is also one other aspect of the bookmakers' pricing strategy in the UK that reduces the ability of substitute products to provide effective competition for CSF bets. The pricing formula used to calculate the CSF returns is not publicised and is difficult to obtain, although technically it is not withheld. Furthermore the likely payout to each CSF combination is not made available to consumers during the course of betting. Indeed, the only information to which consumers have ready access is the actual CSF payout to the winning selection. It would still be possible (though not without cost) for consumers to estimate the expected price of a CSF bet by using historic data on winning payouts. However, suppliers hinder even this by changing the pricing formula every so often.

In summary, there are plenty of reasons why we would expect the CSF bet to offer worse value to the punter than win bets. Is the value actually as bad as we would expect?

Well, as it happens, this very subject has been addressed in a paper I co-authored, with David Paton, for the journal, the *Review of Industrial Organization*.

In that paper, we compared the return to CSF bets with what would be expected on the basis of the starting prices of the horses involved. Unsurprisingly perhaps, we found that the average CSF payout was significantly worse, even allowing for the lower average return generated by longshots. The worst value of all, we found, was concentrated in pairs of longer-priced horses.

So much for the Computer Straight Forecast, but does this mean that all multiple bets represent poor value compared to their single equivalents?

The way in which bookmakers frame their bets certainly suggests so. Take the Lucky 15, for example. This comprises 15 bets, made up of all the possible combinations (singles, doubles, trebles, accumulator). The Lucky 31 bet is the five-runner equivalent of the Lucky 15, while the six-runner equivalent is called the Lucky 63. So keen have the bookmakers been to encourage this sort of bet that there are a variety of special bonuses available to punters who are keen to dabble at this end of the market.

The reason for their apparent generosity is that bookmakers assume that the margin is in their favour, and so any multiple bet simply multiplies the size of that margin. Their confidence is increased because the punter is unable to shop around for the best price, but instead must take a given early price, offered by themselves, or the starting price. So what is the advantage to the punter of multiple bets, of this type or any other?

A clear advantage would arise if the odds on offer about each of the events in your multiple are genuinely in your favour. In this case you would be multiplying up the advantage to yourself, with the added sugar of any free bonuses associated with the bet. You need to think very hard about whether this really is the case, however, especially since you are being forced to take the odds you are given by the same firm for each event in the multiple bet, instead of having the freedom to shop around.

Chapter 8: The Real Lesson Of Dettori Day

The year is 1996, the month is September, the date is the 28th, and the day is Saturday. Ring any bells? Mention a certain Frankie Dettori, and Ascot racecourse, and if you follow racing (or even if you don't) the penny may begin to drop. They certainly started dropping out of the bookies' satchels, and into the arms of grateful punters, the day that Frankie brought home Fujiyama Crest for a historic seven-timer. An estimated 4000 million of them in fact (or £40 million).

The events of that day stand unparalleled in the history of racing, and may never be repeated. If they are, it is unlikely to involve such a high-profile jockey, at such a high-profile racecourse, on a day as big as a Saturday featuring the Queen Elizabeth II Stakes. Even so, there are important lessons to be learned from that day, and they are well worth applying when considering 'multiple' bets.

The last race of the day provides a clue. Dettori's mount in the last, Fujiyama Crest, was allocated top weight, despite being unplaced in his previous two outings. He also had seventeen other runners to contend with. As the firms opened for business that day, 12 to 1 was freely available in the offices. Allowing for the bookies' over-round (or margin), this price implied that the odds-makers thought a bet on it would have little more chance of success than picking the horse's name out of a hat containing the field.

Yet by the time that Frankie had driven Fatefully past the post to win the fifth race of the day, 4 to 1 was as good as you could get.

No sooner had the BBC's extended coverage shown Lochangel flashing home in the sixth, than the price about Dettori's final mount shortened even further, to 6 to 4; *6 to 4*, please note, about the same horse and jockey that had been quoted at twelves only a few hours earlier.

Significantly, most of the liabilities on the myriad of Dettori-based accumulator bets had built up off-course, with the on-course layers dealing mainly in singles. The 6 to 4 about a horse with Fujiyama Crest's claims just couldn't last, and soon the horse was pushed out to 2 to 1. Still ridiculously short in theory, but theory has to take a

back seat when millions of pounds are at stake. In the event, for the princely sum of one pound, a seven-horse Dettori accumulator yielded, at starting price, £25000. At early prices, the same stake would have knocked back the bookmaker almost a quarter of a million!

For those who never did fancy Frankie's mounts on the day, isn't all this spilt milk? Not at all, for there is a lesson to be learned. Just look at the details. Even by the fourth race, the odds had started to tumble on Dettori's mounts, for no other reason that that they were the lag end of multiple bets. Very few of these had, in fact, gone the full monty, most of them being doubles, trebles and four-horse Yankees. Thus, Decorated Hero in the 3.55 had opened in the morning at 14 to 1, but was returned at half that. In the fifth, Fatefully had opened in the morning at 100 to 30 but was returned at 7 to 4. This tells a valuable tale, and one which in smaller measure applies each and every day.

The point of the tale is this. If you follow particular patterns or a particular system in placing multiple bets, beware if these patterns or your system are likely to be followed by others. For instance, you may back all the favourites at the televised meeting, or the horses of a top trainer, or all the odds-on shots. If so, be wary of taking these at starting price. By the time the liabilities have mounted up, that healthy 6 to 1 about the last leg of your Henry Cecil Newmarket accumulator may just have turned to 3 to 1 (if you're lucky). The result is that your potential winnings are halved, or worse. For such bets, seriously consider taking the early price.

It's a tale which the one-time odds-on offer about Marion Jones also tells, in an alternative but complementary fashion, in the context of the Sydney Olympic Games. True, a very different context to racing at Ascot, but very similar market processes at work. It was the day when a much-hyped five-timer for Jones (Golds in 100 and 200 metres, long jump and two relays) was punctured by the superior technique of long jump specialists Fiona May and Heike Drechsler.

Again, the lesson was the same. If you follow particular patterns or a particular system in placing multiple bets, beware if your strategy is likely to be followed by others. Whatever the context, you can be sure that the bookmakers will be alert to it and will take defensive action. In the case of a series of horse races, the defence, as on Dettori

Day, was to shorten up the starting prices of the tail end of potential winning multiples. In the case of well-hyped accumulators, of the Marion Jones variety, the prices are shortened up well in advance. The price of 2 to 1 with William Hill to beat the likes of long jump specialists of the class of May, Drechsler and Tatyana Kotova was miserly, and that's not said with the benefit of hindsight. It was flagged up on betting advice pages across the nation. Yet still the punters came in droves. So it matters not whether we are looking to Ascot or the Millennium Games. If your accumulator bet is an obvious one, be careful before placing it. The critical question you need to ask yourself is whether value exists at the prices available about each part of the multiple. Of course, you might still be grateful for the £25000 to a pound SP bettors won on Dettori day. Better, though, to have placed the bet early and to go on earning a good proportion of that that in annual interest.

Chapter 9: Draw Biases

Every time we turn on to the World Athletics Championships or the Olympic Games we see a pattern confirmed at track-side that seems to have held from time immemorial. The pattern is this. Sprinters who have to negotiate a bend, whether it is the 200 metres flat or the 400 metres hurdles, or anything in-between, dislike inside lanes 1 and 2, and outside lanes 7 and 8. According to conventional wisdom, the outside lanes give the budding champions nobody to chase, reducing their chances to that of a dog without the 'hare'. The inside lanes, of course, give them plenty of 'hares' to hunt down, but those routes are apparently too cramped to bring the most out of the finely honed cardiovascular systems which are a must for the modern athlete. To make matters worse, the organisers usually see fit to allocate the fastest qualifiers the most prized berths (lanes 3 to 6), leaving the poor also-rans to finish even further in their wake.

Translate humans into hounds, lanes into traps, and we just might, from a betting point of view, be on to something. Certainly, Dek Terrell and Amy Farmer seem to think so, and they provide the evidence in a 1996 article in the Royal Economic Society's flagship academic outlet, the *Economic Journal*. In a mammoth study, they examined several thousand races run over a period of more than five years at the Woodlands dog track in the USA, to see whether bettors could secure a long-term advantage from betting particular traps.

For academic purposes, they termed this a study into the 'post-position anomaly'. Ordinary punters call it looking for a simple money-spinning system.

Common sense dictates that no such pattern should exist, for a very obvious reason. If, say, the dog in trap three regularly pays out more and/or more often than that in trap 6, why on earth is nobody spotting the so-called 'anomaly' and making a quick killing. Once they do, of course, the odds begin to move and the free cashpoint becomes somewhat denuded of its usual supply of notes. At least it should, but the Terrell and Farmer study finds otherwise, and the results provide rather interesting reading.

Instead of the returns equalising over time for all traps, the study

showed that bettors who stuck to the inside track grabbed a significantly higher proportion of the pool than those betting either randomly or on any other trap. Bets on the outside trap paid out worst.

For whatever reasons, and there may be more than one, typical bettors at the Woodlands track consider the outside berths the best of all, and simply bet them with excessive abandon. In other words, the dogs nearest the hare may be starting from a nice position, but certainly not as nice as these bettors like to think. The consequence is that far too much cash is unloaded on the outside traps, and far too little on number one in particular. This leaves those who systematically back the inside track with the best deal on offer. This is what is called a 'post position anomaly'.

Unfortunately, the deductions from the parimutuel (tote) system which characteries the USA track more than ate away the profits they identified from a blind strategy of backing the inside trap on each and every race.

Along the same lines we find a system proposed by Brian Canfield, Bruce Fauman and William Ziemba in 1987. Unlike Terrell and Farmer, they looked to the horses, asking whether trading rules based on a knowledge of a persistent bias in racetrack outcomes could be used to earn systematic profits. To do this, they collected a sample of 3345 races run at Exhibition Park, Vancouver, Canada, between 1982 and 1984, examining win bets for the whole sample, and for a sample of longer races. The idea behind the special focus on longer races was to test their hypothesis that the greater the number of turns in a race, the greater would be the bias against outside positions.

Although they were able to identify a strategy of betting on particular post positions, under particular track conditions, that would appear to offer positive profits, the size of the profits was not large enough to convince them that the strategy would work consistently. Basically, they found that some post positions were significantly more likely to produce winners than others, but that bettors were alert to this as well. As a result, the odds about the best post positions shortened by enough to make doubtful the long-term profitability of any strategy based on such a system.

Undeterred by these findings, Sandra Betton, in a paper published

in 1994, reported the results of a new investigation of post position bias, which she based on 1,062 races at the same racetrack (Exhibition Park) as that examined by Canfield, Fauman and Ziemba. Betton compared the average post position of the first three horses finishing with the average post position to be expected if no post position bias existed. She found the bias to be significant for the first two places but not for the third.

Betton concluded that while 'knowledge of the post position significantly improves the information available from the odds … the relatively low explanatory power of these models suggests that more is unknown than known in the determination of racing results.'

To summarise these results, a knowledge of post position biases can be used to improve your expected return, but there is no proven evidence that the extra advantage can in itself be turned into a sure-fire profitable betting strategy.

Chapter 10: What Goes Up, Must Come Down!

A basketball player makes the shot, and the next and the next. Surely he can't miss now! All past failures dim into the mists of time. 'He's on a roll; he's up for it,' we cry. Those regular wayward efforts we are so used to seeing might have occurred in some other parallel universe or dream world. We always knew his shot was as sure as Cupid's arrow! Do we really think this way? An influential study, published in 1985 in the journal, *Cognitive Psychology*, by Professors Gilovich, Vallone and Tversky, reveals that we really do. Almost everyone in the scientifically selected sample believed that players have special streaks of good and bad performance, which defy the normal laws of chance, as did a host of professional basketball players. This perception of performance is described in the academic literature as a belief in the 'hot hand'. The reason for this belief is well documented. It occurs because people under-estimate just how commonly long streaks occur by pure chance. Five heads in a row is not an outlandish possibility, but let a player make five successful shots in a row and we tend to believe that he's on a roll. The vast majority of times that the streak fails to materialise are simply not registered in the same way. What applies to the perception of players' performances also applies to the teams they play for.

Does the 'hot hand' really exist? For the evidence, we must turn to a paper, published in December 1989, in the *American Economic Review*. The study, by Colin Camerer of the University of Pennsylvania's Department of Decision Sciences, is quite unequivocal. There is no evidence of a genuine 'hot hand' effect in basketball shooting, but there is plenty of evidence that bettors believe in one, and that they put their money where their mouths are in support of their belief. Particularly interesting is Camerer's discovery that bettors believe there is more permanence to losing streaks than to winning ones. In other words, they have more faith in the 'icy hand' than the 'hot'. A similar effect, by the way, has been identified in the perceptions and actions of investors in the financial markets. A classic study by De Bondt and Thaler, published

in the *Journal of Finance* in 1985, showed that stocks of firms that witnessed a recent decline tended to be available at bargain prices. The reason was that most speculators over-reacted to short-term difficulties, and sold the poorly performing shares down to unsustainably low prices. In the end, of course, market forces restored the share price to a realistic level. Quite a bounce for those who kept a cool head, if not an icy hand, and bought at the bottom of the market.

How can sports bettors turn all this information to their advantage? Well, the best bet, according to these studies, is to oppose favourites that performed much better than expected in the previous week. The reason is straightforward. The average bettor thinks that such teams are at the start of a hot streak. This is a classic case of what psychologists and economists call the 'winner's blessing' effect. On average, these punters are just plain wrong. Still, the money goes down in support of their misguided beliefs, and shortens the odds of the 'hot' team below what they should be. As a result, the odds about their opponents are bigger than they should be. This is the team to unload those readies into the unsuspecting satchels of those paid to make the punters' lives a misery.

What applies to American sports should in principle translate across the watery divide. Until we have bigger and better studies, we can't be completely sure. Still, on the weight of evidence, the next time you spot a favourite that performed just that little bit too well last week, remember the old saying – 'What goes up, must come down'.

Chapter 11: Betting In Running

Will they never learn? I speak of the compilers of 'in-running' golf markets. Let me give an example.

As the fourth day of the 2001 US Open at Southern Hills, Tulsa, drew to a close, just Mark Brooks, Retief Goosen and Stewart Cink were realistic contenders. Brooks, on the seventeenth, a couple of holes ahead of his rivals, was 4 to 6 to win. His next shot found the green, while his challengers struck a couple of marginally wayward shots. Instantly he shortened to 1 to 5. Yet the green he had found was notoriously treacherous, and Brooks was the wrong end of it by no little distance. An easily predictable couple of putts later, a decent shot from Goosen and Cink apiece, and he was out to 9 to 4. Yet, in moving from 4 to 6, to 1 to 5, to 9 to 4, nothing spectacular had occurred, little more than the random ebb and flow of shots around their predictable pattern.

No surprise, then, that as Cink and Goosen teed up at the eighteenth, a single shot ahead, they were granted quotes of 5 to 6 each. Brooks, the so recent 1 to 5 shot, stood at 20 to 1! Without the benefit of hindsight, was there ever better advice than backing the outsider of three here?

The rest is history, as Brooks took it to a play-off with Goosen. OK, he lost, no doubt to the relief of those who hadn't taken the 20 to 1. But the point had been made. As it was when Bob took on Tiger Woods in the 2000 USPGA Championship.

Bob? Bob who, you may ask? I refer to the 1 to 5 shot four holes out in the final round.

1 to 5 to beat the Tiger! This Bob must have been some player, or perhaps he had some lead. Well, let's examine the facts.

The Bob in question is Bob May, the journeyman golfer rated so low in the world pecking order that he was offered at all odds up to 150 to 1 at the start of the tournament. On many markets indeed he was one of those 'others on request' sort of players. So perhaps the Tiger was trailing by a fistful? Not at all. Just one shot back with everything to play for.

The answer to the puzzle is much less obvious, and very much to the advantage of those who understand how it occurred. It is simply

the predictable outcome of the way in which odds-makers, and in particular golf odds-makers, price up in-running markets.

To set the scene, Tiger Woods and Bob May were more or less sharing favouritism hole after hole, the Tiger shortening up to 1 to 2 every time he produced a good shot, and back to evens every time he displayed a less than perfect example of his game. Until, that is, he found the lush grass overlooking the putting surface. 'Not such a good lie!' came the strangled cry from the commentary team. It looked good enough to me, and was proved so. Not before May had been slashed, though, to 1 to 5 and Woods lengthened to 3 to 1. As expected, a straightforward (for the Tiger at least) chip, within putting distance of the hole, and we were back to where we started from. Yet for a precious few minutes you could have taken the best player in the world (and a bit more) at 3 to 1, just a shot down, to make up the distance on the 150 to 1 rag.

A lesson learned, and it wasn't long before it was easy to take advantage. The NEC invitational, played the following week, saw swings galore as Hal Sutton, Phil Mickelson, Phillip Price and Justin Leonard fought it out for the honour of finishing second to the Tiger. By following any of these players, even half a course out, and simply waiting for a wayward shot, you could see your odds double or more, before eventually bouncing back to equilibrium as professional golfers showed the odds-setters the way in which to play a recovery shot. Each player in turn became hot favourite (even odds-on favourite), with scarcely a change on the scoreboard. It was as if the odds-setters were calculating the effect of a dodgy drive on the basis that they themselves were having to play the wayward ball.

This method of setting odds is a little strange, to say the least, and potentially very profitable for the clued-up late night viewer with teletext buttons at hand. Strange yes, but quite in keeping with the science of betting and indeed the theory of finance. Small changes have a tendency to produce big effects, in the very short run at least, until equilibrium is restored, as the overall impact of market forces re-establishes order and good sense.

How can these professional odds-makers be getting it so wrong? Well, maybe they aren't from their point of view. It could simply be an appropriate defensive response to the expected response of the betting public. After all, if a player produces a bad shot, those

wavering at the margin who pick up their telephones are more than likely doing so to oppose him.

Now is your opportunity. Now is the time to side with the new underdog. In truth, you may never get a better chance.

Chapter 12: The Difference Between Risk And Uncertainty

To illustrate the difference between risk and uncertainty we need look no further than the game of tennis, and in particular the 2001 Australian Open semi-final between all-American Andre Agassi and Aussie hero, Pat Rafter.

At the start of the match, 8 to 15 was the best you could get about the American, with 7 to 4 available about the local boy. The odds to win the tournament were 5 to 6 Agassi, 5 to 2 Rafter.

After two hard-fought sets, Rafter seemed to have the advantage, losing the first 7 – 5, but winning the second 6 – 2. Still, Blue Square, betting in running, gave the pre-game favourite the edge. After three, Rafter led by two sets to one, thanks to a dominant tie-break performance, and by now the market-makers at Blue Square had to acknowledge that the balance of risk and (quite literally) return had tilted. More than simply acknowledge the fact, they went 1 to 3 the Aussie.

All conventional stuff so far, until the bearded antipodean seemed, at least to perceptive viewers, to take on a somewhat stilted gait, not to say a limp.

Risk had now turned into what students of probability theory would term *uncertainty*. The difference between the two, while not obvious in normal conversation, is critical to the statistician. Whereas risk is measurable, at least in principle, uncertainty is not.

To clarify, if I draw a card from an unopened pack, I am taking a risk. I know, if it is a fair pack, that my chances of drawing a spade are 1 in 4. Now, if I am told that there will be a card game, but that the nature of the game and the organisers of the game are yet to be decided, I am entering into the realm of uncertainty. Before, I was able to attach a statistical probability to the outcome. Now, there are so many imponderables that it is unclear how I should go about estimating the odds of winning.

To return to the tennis, we can calculate from past evidence how often a slightly lower-ranked player, two sets to one up, goes on to win the match. If I know the odds better than the market-maker, I have the edge.

A hobbling tennis player, two sets to one up, is a whole different proposition.

The behaviour of the market-makers in these circumstances was very instructive, for it shows how professional odds-makers react when the odds are not readily calculable. They suspend the betting, a stance which continued even when the afflicted Australian was able to win his first service game of the final set.

It is interesting, therefore, that professional odds-makers are more than happy to offer odds about a wide category of events which are equally uncertain in nature, in the sense that there is no clear way to assign a probability rating to them.

How do they achieve this? Well, one obvious ploy is simply to sidestep genuine uncertainty, and instead offer odds only where the apparent uncertainty is in actual fact a case of scarcely concealed certainty – that it won't happen. Prince William to wed Britney Spears. Italy to win the Rugby Grand Slam. Elvis to pilot an alien spacecraft into the Loch Ness Monster. All are faintly possible, I suppose, but you get the idea.

Such bets need not detain the sophisticated bettor for long, then, which is why the true sleight of hand is in offering odds about events that rate somewhere in-between risk and uncertainty.

If you really do want to back a longshot, enter a market where the odds at least bear some semblance to the chance of it happening. That normally means conventional markets, subject to the cutting edge of competitive market forces.

Having said that, we must not forget a certain Mr. David Threlfall, for it was he who once asked what price William Hill would give him about a man walking on the moon by 1970. He was astonished by the answer. 1000 to1! Astonished because he had just seen President Kennedy promising that very thing on the TV.

On the evening of 20 July, 1969, while Neil Armstrong and Buzz Aldrin sat in the *Eagle* at Tranquillity Base, Mr. Threlfall was presented with his cheque for £10,000 live on the David Frost show.

David Frost is still around, so are William Hill. Similar naiveté by odds-makers, unfortunately, is in much shorter supply. The best you will now get is a 500 to 1 quote that the US President will declare that it never really happened. Hardly appealing, but then again!

Such long-term predictions are growing increasingly popular, and

make traditional ante-post betting look rather tame. Take the well-known bookmaker who is offering odds about the year that 'man' will first walk on Mars. Still, I think I'll leave alone their 50 to 1 about it happening this year.

William Hill were even more far-sighted, offering 5 to 1 at one time that Senator Hillary Clinton would become President Hillary Clinton before she shuffles off this mortal coil. Betting to close on 11 November, 2040. Do they know something we don't?

Ideally though 'super-ante post' bets should have a payout date this side of an age at which you are still likely to care. Any takers on the date of the end of the world?

Chapter 13: Strike While The Iron's Hot

If you leave a drunk in the middle of a field, where are you most likely to find him? Not a riddle, but the subject of serious correspondence in the scientific journal, *Nature*, in the year 1905. The answer the scientists came up with is simple enough. You are most likely to find him where you left him. This is not because he was too paralytic to move at all, but because he is equally likely to have moved in any direction. Since you can't tell which, your best guess as to his current location is where he started out. Put this reasoning into a mathematical framework, develop all its implications, and you have before you what statisticians call a 'random walk'. All sorts of naturally occurring phenomena follow a so-called 'random walk', the best documented being pollen seeds in a liquid solution. It is, in fact, absolutely impossible to predict the next movement of these seeds from their previous movements. The path is completely random. Scientists, by the way, call this haphazard journey a case of 'Brownian motion', after nineteenth century-botanist Robert Brown who first spotted its existence. Random walk theory, however, has much more important implications than being able to find that the friend you left in a field slightly the worse for wear, or that elusive pollen seed. It tells us about patterns of movements in all sorts of vital areas, and that includes financial and betting markets.

The idea of a random walk in the movements of share prices has been with us since Louis Bachelier first noticed that you couldn't predict the movements of futures prices on the Bourse (the Paris Stock Exchange) from previous movements. The reason was quite simple. At any point in time, share prices should reflect all available information. At least, that's the theory. If so, there is no way to predict how the share price will move again, unless and until new information becomes available. Any movements before then will be purely random, and as such unpredictable. As soon as new information does become available, the gain goes to those who spot it first. If it's good news they should buy the share now before the

price goes up; if it's bad news they should likewise sprout wings to sell, before they sit facing a loss. Unfortunately for the vast majority, by the time they have acted it's too late. The fleetest of foot, with the quickest access to new information, have already reaped the spoils.

The same applies to betting markets. By the time the market has settled down, the real gains to be made have for the most part disappeared into the mists of time. The on-course racetrack betting market is a clear case in point. The market may be open for several minutes before a race, but by the time it closes the prices available will more than likely incorporate all the information that is available about the horses or dogs springing into action. That's a pity for those who always take the starting price, but the beauty of the British system is that you don't have to wait. If you have genuine new information, it is vital to strike before the information filters out to the madding crowd. Fortunately, because you are able to take a price, what happens after you have plunged in doesn't matter a jot. That's all very well if the information you obtain is the genuine article, and it's why in those circumstances the bookies' telephone lines are jammed with those all at once seeking to get on before the price goes. If, on the other hand, your new information is simply a rumour or a whisper from an unreliable source, take the advice of numerous studies. On average, the starting price is the best price ever available. On average, of course, you won't win at starting price. That's why genuine information, acted upon very quickly, is a recipe for long-term betting success. At least that's what science tells us, and it's been doing so ever since it was used to track down that drunk in a field.

Chapter 14: Prescribing The Right Dosage

A flying visit to Louisville, Kentucky, followed by an even more hectic schedule based around the financial downtown district of San Francisco may sound a bit like fun. And for me, it was. But it was also a lot of hard work, attending and presenting papers at one conference devoted exclusively to racetrack betting (at the University of Louisville), followed by a series of sessions on betting analysis more generally (the 76th Annual Conference of the Western Economics Association), in San Francisco.

The participants at Louisville hailed from every corner of the globe, each seeking to introduce the latest research techniques to examine what seemed almost every angle of betting and gaming.

Some had made their research pay – handsomely; some were in it for the sheer pursuit of academic excellence; all were fascinated by the workings of betting markets; and most turned a great day out at Churchill Downs into an even better one courtesy of the US Tote, the parimutuel.

Even the traditionalist *Louisville Courier* saw fit to devote a whole page to the proceedings, and in particular to the latest developments in the science of forecasting which horse is likely to finish first past the post.

Of all the new research efforts that week in May, 2001, I shall focus here on the offering of the famed guru of the track, Professor William ('Dr. Z') Ziemba.

Dr. Z, as he is generally known, pinpoints a technique for selecting the winner of defined high-class races, based on blending two 'experts': the *odds* and the *Dosage* (a system based on breeding). The Ziemba theory is that bettors should choose a horse that is favoured by bettors (but isn't the favourite) and also has a low Dosage Index.

The Dosage Index, loved and loathed by American racing fans in almost equal measure, was invented by racing expert, Steve Roman, and popularised by the USA racegoer's bible, the *Daily Racing Form*. It is loosely based on the work of a French cavalry officer who advised the Aga Khan on his breeding operations in the early 1900s.

Roman came up with a numerical formula based on breeding, which predicts whether a horse is capable of winning at a distance of 1 mile 2 furlongs or further in the spring of its three-year-old season.

The lower the number, the better the prospects. Only three Kentucky Derby winners, for example, have had a Dosage rating of greater than 4.

The reason that Dosage is so critical to these types of races is that generally the horses have never before run at these distances. In other words, you don't know if they'll run out of steam before the end of the race. As Dr. Z puts it, 'The hardest race of their life is the Derby … and they've never gone that distance.'

Moreover, the beauty of the system is that bettors don't have to analyse complex mathematical equations, or even know much about the horses for that matter.

To put it simply, the Dr. Z system for predicting the outcome of Classic races run over a mile and a quarter or more is to exclude the favourite, and of the remainder to back whichever horse has the best stamina pedigree.

The devil may lie in the detail, but for a theory that has produced such consistently healthy profits over such an extended period of time it really is almost as simple as it gets.

Chapter 15: The Home Ground Factor

I wonder how many people will still be leafing through a reprint of this book in 2020. I hope quite a few. In any case, judging from what I found recently in a faded 1982 edition of *New Scientist*, you never know what you can learn from the past.

The 1982 article, entitled, 'Why Spain should win the World Cup', set out to answer whether it was England that won the World Cup in 1966, or whether it was Alf Ramsay and the boys. In other words, how much did home advantage shape the outcome?

It is conventional wisdom in 2001 that home advantage confers about half a goal superiority compared to playing on neutral territory, so that playing on home territory confers about a one goal advantage compared to the reverse fixture.

Jack Dowie, who has studied betting markets for longer than most, knew nothing of 2001 when he sought to explain in the *New Scientist* why it is that professional sportsmen should be so cursed by their travels. He knew rather a lot, however, about football statistics between the fall of Hitler and the then recent decision to award three points, instead of two, for a League win. Over this period he found that home advantage was worth about 0.6 of a goal for teams playing in the top division, and about 0.7 for the lower divisions. That means that the value of home advantage has weakened slightly since the early 1980s, and particularly so in the lower echelons of professional football.

Dowie's article sought to distinguish between the effects of three well-established explanations of home advantage, known as the Three Fs explanations. Each of these Fs – *fatigue, familiarity* and *fans*, has attracted the support of academics over the years as the key factor explaining the under-performance of the travelling set.

First, fatigue. The 1982 study looked for evidence that away teams' performances drop off relative to home teams as the game progresses. In his sample of nearly 40 years of data, Dowie found little evidence of any such effect, as measured by the likelihood of scoring a goal at any given point during the course of the match. Away teams did score fewer goals, on average, than home teams, but this disparity got no worse as the game developed. Clearly this

evidence does nothing to strengthen the case of those who point to the weariness of the visitors as a key issue.

Likewise, familiarity with the pitch is likely to be a bonus for the home team. If this is a key factor, however, teams who are travelling from a similar pitch to the home team should be less disadvantaged than those who are travelling to a very different sort of pitch. One obvious way to test this is to ask whether teams who play on relatively big pitches have a particular statistical advantage when playing host to visitors whose own home ground boasts a small pitch, and vice versa. In fact, there appears to be no such pattern in the more than ample data set. Home advantage seemed to remain constant whatever the relative pitch sizes of hosts and visitors. Not much support there for the familiarity hypothesis.

That leaves the third F – the fans. They obviously count for something, but inasmuch as they do, what is it about them? Is it the absolute number of fans, or is it the relative number of home fans compared to away fans? Here the data set did produce some interesting findings, revealing that the advantage conferred by playing at home was significantly greater for games played in the lower divisions than in the top division, even though the absolute number of supporters was much smaller in these games. Moreover, the advantage was much less in 'local derbies'. The conclusion to be derived from all this is that it is the balance of support at the ground which matters.

A study, quoted in *The Times* (9 May 2002) may provide part of the explanation for this crowd effect. A study by Alan Nevill, of the University of Wolverhampton, set out to test whether referees' decisions are affected by the noise of the crowd.

In an experiment, 40 qualified referees were shown video footage of 47 tackles from a Premiership match. The referees were divided into two groups, half of whom were exposed to the original soundtrack, while the other half listened to a silent version of the match. Neither group had access to the original referee's decision. In actual matches, it should be noted, about 60% of bookings points (10 for a yellow, 25 for a red) are awarded to the visiting team.

Those referees who watched the original soundtrack were reluctant to penalise the home team, judging 15% fewer of the tackles by home players to be fouls as compared to those referees who

watched the silent footage. The implication of the study was that in the absence of crowd noise the officials were more equal-handed between the home and away sides. The original referees' decisions, however, more accurately mirrored the behaviour of those armchair referees who had access to sound. Alan Nevill has his own explanation: 'To get the crowd off their back they wave play on.'

If true, this explanation of home advantage is fascinating, but it is only of use to a professional gambling strategy if it is not already fully factored into the bookies' odds. Insofar as it is not, bettors who back teams where the ratio of home to away fans is particularly high will, in the long run, be on to a winning strategy.

If it were only so easy, we would all be millionaires, of course. On the other hand, perhaps we should be.

Chapter 16: The Patriot Bias

It was a great day to be at Trent Bridge, and especially to be seated directly behind Merv 'the Swerve' Hughes, 'Pistol' Paul Reiffel and half the Aussie throng. Indeed, for a brief few hours on that marvellous afternoon in the summer of 2001 I thought that we were about to witness a reflection of the glory days of Headingley 1981. As Aussie wickets were scuttled in quick succession, I was all the more delighted to be entertaining that very evening a visiting cricket-mad friend hailing from down under.

It was not long before our evening meal turned to talk of wagering. 'Bet you're glad you took a slice of that 11 to 1 about an England win?' he offered, knowing all too well that I had done no such thing. Shamefacedly, I had to admit I had not even taken the 14 to 1 available elsewhere. Once again, it seemed, I had fallen into what I have myself all too often called the 'patriot bias', which is the tendency we Brits have to swing from crazy overconfidence whenever our team is favourite to win, to crazy underconfidence when we are the hapless underdogs. By next morning, I was all the more aware of this syndrome, as I had to call on every dispassionate bone and sense of reason to keep the 'phone on the hook despite that 'massive' 13 to 8 about England routing the Aussies.

The cold logic of the fact was that both odds were wrong. 14 to 1 was too long at the start of a match where the draw was always a vanishing possibility, and where so much could turn on the resolution of a few crunch moments which could go either way. 13 to 8 was really too short to take about England on the basis of a late-afternoon rally in the failing light.

The bottom line is that we as a nation of sports lovers are all too ready to take ridiculously short odds in any sport where our national team is expected to win, and to pass up ridiculously long odds whenever we as a nation are expected to lose.

The overconfidence side of the equation has been given ample support in a 1995 US study of so-called 'teaser' bets, undertaken by Joseph Golec and Maurry Tamarkin. In teaser bets, the bookmaker allows the bettor to be wrong by a given amount and still win, albeit at the expense of a lower payout. It appears, according to the Golec

and Tamarkin study, that bettors in fact underestimate dreadfully just how likely they are to get things wrong, and so believe that a little leeway is much more useful to them than, in fact, it actually is. In other words, bettors are too confident in their own abilities.

Apply this now to the national team playing football or cricket, or whatever, and we seem to take this overconfidence to an extreme. If we think England are going to beat the USA at football, say, we are a little too sure of ourselves, and the odds will be too short in consequence. If we think that England are going to lose to the touring side, on the other hand, we are too sure of the visitors, and the odds about England will tend to be too long.

Be careful, because the 'patriot bias' is still only a theory. Even so, it is a theory in which I have sufficient confidence that I shall be backing England to win the next Ashes series held on our shores.

Of course, I may lose, but the 'patriot bias' tells me that at least I will have grabbed the value. Now what was that I said about being overconfident?

Chapter 17: Small Is Beautiful

Heads or tails, Greg Rusedski or Tim Henman? What do these choices have in common? Well, it's a choice between two, of course, and there's going to be a result. As a bookmaker, what odds do you set? Assuming the coin has two sides of the conventional variety, fair odds are evens the head and evens the tail. This means that whatever sum of money you stake on the outcome will be matched by the bookmaker if you win. You'll also get your stake back. If you call heads, however, on the coin that landed on its tail, you lose whatever sum you bet. At such odds, over the long run you (and the bookmaker) will break even. That's of little use to the bookie whose motivation is to make a living, so it's more likely you'll be offered, say, 4 to 5 each of the two. These odds means that for every five pounds staked you can expect to win four. Worse still, there seems to be no way, short of fixing the coin, to beat the odds. Not so with the tennis match, where your perceptions of the true odds might well differ from those offered by the bookie. You may or may not be on the right side of the difference, but at least there's hope, and you may even be able to shop around for different odds with different companies.

There's something else as well which makes such bets particularly good value. The notional 'profit margin' built into choices between two outcomes is normally particularly low. The term used to calculate this margin is known as the 'over-round', and it works like this. If the bookmaker offers you evens about Rusedski and evens about Henman, you can stake five pounds on each. Now it doesn't matter who wins the match, you will win five pounds and have your stake on the winning outcome returned to you. So by covering all the options you get ten pounds back for the ten pounds staked every time. The 'over-round' in this case is zero. If, however, you are only offered 4 to 5 about Rusedski and evens about Henman, you can't for sure cover your bet. Stake five pounds on each of the tennis stars, and you will earn five pounds if Henman wins (£10 including your stake back), but only an additional four (£9 including your stake back) if victory goes to his opponent. In effect, you have staked ten pounds to be sure of receiving back nine. The percentage

difference (usually added to 100%) is known as the 'over-round,' and the smaller the over-round the less in-built advantage the bookmaker has in the odds.

Indeed, in events like tennis, or even boxing (where the draw is usually quoted at 25 to 1 or longer) a simple calculation of the over-round implied in the odds reveals just how disadvantageous they are to the odds-makers, relatively at least. The reason may be linked to the sheer simplicity of the outcome. Either A wins or B wins. That doesn't leave a lot behind which the bookmaker can hide, and one of the consequences is a relatively small 'margin' on such bets for the bookmaker.

This is why bookmakers promote heavily the expansion of choices that arises from choosing the exact round of victory in boxing, or the precise score in tennis, or the number of frames in snooker.

To maximise your advantage, avoid the pre-tournament odds. There are so many options that the bookies can shade the prices far too easily. This doesn't apply to individual match bets. Take as an example an imaginary Wimbledon men's singles final. Let's say that Lleyton Hewitt is available at 8 to 15, while 7 to 4 is the offer about Andre Agassi. At these odds it is almost possible to bet on both players, to suitable stakes, and win whatever the outcome. Not quite, but the 'margin' in favour of the bookies works out at a mere 1.6 per cent. In a number of cases, however, the margin disappears altogether – say Venus Williams at 6 to 5 with one firm, playing Serena at 5 to 6 with another. Now compare this with the racetrack, where the notional 'margin' in favour of the bookmaker, at starting prices, works out at about 2% per horse in the field. In other words, a 10-horse race will probably be characterised by a 'margin' of about 20%, whereas it might be nearer 50% or even 60% for a large sponsored handicap.

As a bookmaker, any means of increasing the number of options is usually a good thing. This can mean publicising the ante-post odds about a championship very heavily, or the odds at the start of the tournament, as in both cases all the players are still in the field. The other method is to encourage betting on the score, which offers four options for the women's game (2 sets to 1 and to love in favour of each player) and up to six for the men's game (3 – 0, 3 – 1, 3 – 2 for both). The ideal scenario, from the bookmaker's point of view, may

be to offer odds at the start of the tournament about the number of sets an identified player will take to win the final.

The best advice from a betting point of view, therefore, is to watch and wait for individual match odds. From the quarter-finals on, the number of bookmakers offering odds start to grow, and the overall 'margin' in favour of the bookies (if indeed it is overall in their favour) starts to plummet.

Now is the time to step in, as soon as the odds are generally available with most bookmakers. This means, for example, looking to bet on the Sunday men's final on Saturday morning and the women's final on the Friday. By the day of the match the most generous odds will have been taken.

Indeed, excluding the 40 to 1 no-hopers and beyond, the over-round, at the best odds available with leading bookmakers, is sometimes well under 100%, which means a healthy margin in favour of the betting public. This means that if you are quick enough off the mark, it is often possible to stake at a variety of odds such that you are guaranteed a net profit before another ball crosses the net! Of course, we expect lower margins when field sizes are smaller, but this is a gift from the tennis gods which never ceases to amaze.

Much of it has to do with wide disparities in the judgements of tennis odds-compilers. Take the 2000 Australian Open, for example. At the quarter-final stage, while Jennifer Capriati was 5 to 1 with Coral, she was 7 to 2 elsewhere. While Serena Williams was 7 to 1 with Chandler, she was 9 to 2 with Ladbrokes. While Justine Henin was 8 to 1 with William Hills, she was 9 to 2 with Ladbrokes. While Kim Clijsters was 12 to 1 with Coral, she was 6 to 1 with Chandler.

This is just to look at the main market-makers. Those who have the time and energy to peruse the Internet for the widest range of offers would have spotted even larger disparities.

The odds-setters can't all be right, of course, but where tennis is concerned they manage to stay in business. It is difficult to fathom logically why this is so, but part of it might lie in the money that the bookmakers make on so-called special markets. Try not to get sidetracked into these, however cleverly designed, for they are special in one very particular sense – in the degree to which the odds are tilted towards the book.

For the record, I was not tempted by Blue Square's one-time offer

of 25 to 1 about Anna Kournikova kissing (I think it was) the ball boy!

So choose the player who you think offers the best value at the quarter-final stage, and stick to a bet on that player to win the tournament. The value in such a strategy is particularly marked in the women's game, where the odds tend to diverge more sharply across bookmakers than is the case with the men's game. Why this is so is anybody's guess, but it matters not to the profit-seeking punter.

So, with a major tournament approaching, how to go about identifying this value? The first thing, once the quarter-finalists are identified, is to strike off any player offered at 7 to 1 or above by the most miserly bookmaker. This bias against longshots seems to be exceptionally strong in women's tennis.

Of the remaining handful, simply choose the player whose longest odds bear the greatest ratio to their shortest odds. This may not be the winner, but to value-seekers it probably represents the best available value. And for those who must bet early, you could do worse than stick with the obvious.

Finally, if you really do favour the racetrack, be keenly aware of one fact. Horses starting at short odds are just as good value in a large field as a small field. Thus, a 1 to 2 shot has basically the same chance of winning if up against twenty rivals as up against one, i.e. a very good chance. Remember this when selecting value.

In conclusion, it is regrettable that the impact of high tax rates on winnings has historically discouraged even clued-up bettors from exploiting the value available in small fields of whatever complexion. With the new era of tax-free betting, however, such excuses are becoming increasingly outdated. Small really is beautiful at the racetrack and in so many other sporting arenas. The value is there – grab it with both hands!

Chapter 18: The Hi-Tech Crystal Ball

Wouldn't it be wonderful if we could devise a computer program that could instantly tell us the winner of any race? What would we give for such a hi-tech crystal ball? The answer depends, of course, on who else has access to this magic oracle. If it was freely available to all and sundry, the information would, of course, be useless. Just imagine, however, that you and maybe a select group of other like-minded souls had the secret. Now we're talking. Just stop dreaming for a moment, and let's take a trip into the real world. In the land of the waking it is, of course, impossible to predict the winner of every race, if only because there are too many random factors that can upset the best of calculations. Statisticians call these random factors 'noise'. That's the bad news. The good news is that these factors tend to balance out over time, so any properly devised system which takes into account all or most of the predictable indicators will tend to do very nicely indeed. The question is whether such a system exists, or indeed whether it has ever existed. Ask Bill Benter how he made his millions, and you have your answer.

Bill Benter is a name that is most famously associated with the betting syndicate that cleaned up in the Tote-style pools characteristic of the Hong Kong racetrack. Not only a successful gambler, he has also contributed to the academic literature, notably in a paper published in 1994, entitled 'Computer based horse race handicapping and wagering systems: a report'. The question he seeks to answer in that paper is whether it is ever possible for a fully mechanical system (a system based on a fixed model) to beat the races. Ever the practitioner, he provides the answer by constructing just such a model. The method is to identify each individual factor that could possibly predict the outcome of a race, and then to whittle these down to the most reliable and effective. Once he had a model that worked on past data, he then tested it practically on a large sample of further races. This so-called 'out-of-sample' testing is vital for a proper statistical analysis. Sometimes he found that a variable was useful in predicting race outcomes, but he couldn't really understand why that should be the case. In such circumstances, he decided, the best policy was not to care. Faced with a choice between a

profitable model that he couldn't fully explain, and an unprofitable one that he understood perfectly, he chose the former. If it works, as the saying goes, don't fix it.

So what's the bottom line? Well, that's the best part. Benter's model was tested over five seasons, and consisted of around 470 bets a year. Although the average track take was about 19%, the model showed a significant net profit in four of the five seasons examined, and a sharp upward trend in the returns over time as the model was improved.

Fortunately for Bill Benter and his team, they got in early, when there was little competition from other computer wizards. It was, in his own words, a Golden Age for such a system. As he so clearly observes:

> 'In the future computer handicappers may become more numerous … which will likely cause the market to become efficient to such predictions. The profits have gone, and will go, to those who are "in action" first with sophisticated models.'

Unless, of course, you have access to that model which is just a little bit better than the others.

Chapter 19: Better Late Than Ever!

It's the last race of the day, and your wallet is weighing rather less than it was in those expectant hours preceding your trip to the races. You've just enough left for a pie and a pint – and one last tenner over. You have two choices. You can make a quick exit, or you can stay and fight back. Now, assuming you decide to be bold, just how bold a strategy should you adopt? Fortunately, research undertaken in the USA and the UK may have the answer.

As long ago as 1956, an article appearing in the *American Journal of Psychology* offered the first clue. The author, William McGlothlin of the Rand Corporation, found that while betting on favourites was a much better strategy overall than betting on longshots, betting on favourites in the last race of the day was even better. The evidence in the psychology literature was soon backed up by professional economic research, Mukhtar Ali of the University of Kentucky (1977) confirming the findings for a very large data set of races run in the USA. Indeed, the evidence was quickly so overwhelming that it was soon accepted as fact, and given the status of a 'Law', arguably putting it rather perilously on a par with Newton's Laws of Physics. The 'Law' is known to academics as Gluck's Second Law, and it states that 'The best time to bet favourites is in the last race.'

Why should this be so? Explanations abound, but the simplest explanation may well be the best. It goes like this. As the day wears on, the average punter at the track has less and less money to play with. By the time of the last race, there may be less available to stake, but there's still the hope of at least breaking even on the day. But only if you bet the longshots. That tenner on the 20 to 1 shot will send you home as happy as Riley on a good day. A tenner on the odds-on good thing, on the other hand, might reduce your losses if it wins, but you're hardly likely to depart the track with a broad grin on your face. That's why the last race of the day is often so aptly named the 'Getting-out Stakes'.

As a shrewd bettor, you can learn from this pattern of behaviour, to your long-term advantage. If the mug punters are betting too much on the longshots, and doing so in spades as the sun begins to dip ever lower in the sky, that must mean that there's relatively less

going on the shorter-priced nags. The consequence is that the favourites are better value than they ever were. If you're going to strike at all, this is the time!

Surprisingly perhaps, a study of the behaviour of off-course bettors in the UK, conducted by Johnnie Johnson and Alistair Bruce, and published in 1993 in *Psychological Reports*, showed that betting shop regulars tended if anything to bet the favourites later in the day more heavily than ever.

For off-course bettors, of course, there's always another day, another pound to win or lose, so the same psychology as afflicts the irregular racegoer doesn't necessarily apply. Alternatively, it could be that the British are more sanguine about the cash that's already flown the nest, and are not half as impatient as their American cousins in trying to grab it back. Don't bet on it, though.

So what's the bottom line? Should we hang around for the last race of every meeting before unloading our previously zipped wallets onto the latest sure thing? The bottom line is in fact to heed the evidence, but to use it with care. There is still not enough research done in the UK or on recent data to provide convincing evidence for a system. Moreover, before you decide to hand over thick bundles on the favourites in the last race of every meeting, please note that the strategy at its best doesn't predict a clear profit to a blind policy of betting every favourite in every last race of the meeting. It simply predicts a better return than you could otherwise expect.

Chapter 20: The Value Of Tipping Agencies

Compared to other areas of betting research, there has been very limited academic study of the value of professional racetrack forecasting services. Indeed, the most well-known study, at least for the British racetrack, until fairly recently, was published by Nicholas Crafts in 1994.

Crafts examined the performance of three betting systems on sale in the market. He tested each of the systems on the basis of results generated prior to and after publication of the systems. He found that one of the systems demonstrated some evidence of pre-tax profitability prior to publication of the system, but otherwise no evidence at all of any significant profitability.

He also reported the absence of profitability in nine racing systems and five tipping services, based on results reported elsewhere and concluded: 'The continued sale of these systems suggests that the participants in British horserace betting include many gullible outsiders.' By 'outsiders' he was referring to punters without access to inside information.

I decided to put this conclusion to the test using tips provided by five relatively expensive and well-publicised tipping services in the 1990s. I have kept the names of the services anonymous, but published my findings in the highly respected academic journal, the *Journal of Forecasting*, in November 2000.

What I found was perhaps surprising. All of the services examined generated a pre-tax profit to the advised staking and betting plans, at starting price. In no case, however, were these profits large enough to be judged significant using standard statistical tests.

It was also possible in some cases to improve the profitability by focusing only on the more strongly advised tips.

It is quite feasible that the results would have been better at the price available when the advice was first announced. This is because the odds may subsequently have shortened, in response to money placed on them by clients of these agencies.

My overall findings, therefore, did not show evidence of

spectacular success, at least at starting prices, but it was certainly a much happier tale than the one told by Professor Crafts. Even so, in assessing these findings, there are still certain problems to be addressed: The problems are these:

1. Is it possible to obtain the advised price? If a large number of clients are all vying for the same price, it is quite conceivable that the price would be shortened before a significant number could obtain that price. Indeed, the defensive response of a bookmaker or bookmakers targeted in this way may be to shorten the price excessively, even below the subsequent starting price.

2. How much is it possible to stake at the advised price? No bookmaker can be forced to stand the quoted price to any given sum. It is well known that bookmakers, especially in the face of a heavily tipped horse, will restrict the stake at that price.

3. How much does the tipping service cost? The more expensive the service, the greater the stakes required to show a net profit, even if the tips produce a theoretical profit. Of course, the larger the stake required, the greater the risk involved, and any returns must be weighed against this additional risk.

4. Be aware of how any profits advertised by the forecasting service are compiled.

Blatant dishonesty is one thing, but there are more subtle methods of generating a notional profit. Let me point out one of the more sophisticated ploys.

Take a service which works on the following basis:

The client is provided with a tip about a horse, along with a price (a so-called 'minimum price stipulation').

The client is told to bet on the horse only if the minimum price becomes available. If it does not become available, the advice is void.

Say, for example, that the tip for the day is Mr. Nippy, with a minimum price stipulation of 4 to 1.

Now assume that Mr. Nippy opens in the market at 3 to 1. On the basis of the minimum price stipulation, you should wait, for this is below the minimum price.

Say, now, Mr. Nippy lengthens to 4 to 1 in the market. What should you do? Take the 4 to 1? Clearly you should, because you do not know if it is going to shorten or lengthen thereafter.

For example, say it subsequently shortens to 3 to 1 and you have not taken your chance to bet at 4 to 1. It is now too late.

The price may, however, lengthen to 5 to 1. What now? You have already placed your stake at 4 to 1, in case it shortened again.

The tipping service in these circumstances has the best of both worlds in announcing its results.

If the price extends to 5 to 1, or 6 to 1, or even longer, they can claim the longest price it ever reached. If it shortens after touching the minimum price stipulation, they can claim the price before it shortened.

Hindsight is a wonderful thing, of course. It is available in compiling their notional profit and loss accounts, for display to the public, but to the hapless client no such perfect foresight is available.

In other words, the accounting option open to the service (without lying at all) is not available to the client, and significant profits can in this way potentially conceal something far less flattering. Clever, isn't it?

This is not to imply that every tipping service that works on the basis of a minimum price stipulation necessarily operates like this. Before parting with your cash, however, it may repay your time to check it out.

In conclusion, there is plenty of evidence, from the analysis of forecasting services highlighted here, and from studies of the existence of inside and superior information examined elsewhere, to suggest that some people know enough to make substantial profits at prices obtaining at some point in the market.

But remember the old adage – those who are telling don't know, and those who know aren't telling. Be careful, therefore, to check out the credentials of the service, and to factor in all the costs.

Chapter 21: Betting On The Oscars

Not since the days of *Pretty Woman* had Julia Roberts been available at such a generous price, although even Richard Gere would have needed a betting brain to take advantage of the offer.

I refer here to the 11 to 10 available at best price in my sample of bookmakers at the opening of the market about Ms Roberts taking the 2001 Best Actress Oscar for her part in *Erin Brokovich*. Although available only to a maximum stake of £25, it compared with competing prices ranging from 4 to 6 all the way down to 1 to 5.

Witness the following top prices about Best Actress: 11 to 10 Julia Roberts, 12 to 1 Joan Allen, 20 to 1 Juliette Binoche, 20 to 1 Ellen Burstyn, 20 to 1 Laura Linney. This makes up to a margin in favour of the bettor of 30.4%. The book is what is termed *overbroke*. It is, in effect, the equivalent of a bookie offering 15 to 8 against both horses in a 2-horse race.

A similar pattern emerges in an examination of the best opening prices about Best Actor: 7 to 4 Russell Crowe, 15 to 8 Tom Hanks, 10 to 1 Geoffrey Rush, 20 to 1 Javier Bardem, 20 to 1 Ed Harris. This adds up to a margin in favour of the bettor of 11.2%, or about the same as 5 to 4 against each of two horses.

For the record, Best Picture that year opened at 4 to 5 *Gladiator*, 5 to 1 *Traffic*, 8 to 1 *Crouching Tiger, Hidden Dragon*, 20 to 1 *Erin Brokovich*, 40 to 1 *Chocolat*. That favours the bettor by a margin of 9.5% (equal to about 6 to 5 against each of two).

Those thinking this was a one-off need look no further than the equivalent market for 2002. The favourite for Best Actress this time was Sissy Spacek, at a best 4 to 5, and as short elsewhere as 1 to 2. Meanwhile, Nicole Kidman was as long as 5 to 1 and as short as 9 to 4, Judi Dench as long as 10 to 1 and as short as 11 to 4, Halle Berry as long as 12 to 1 and as short as 3 to 1. Bringing up the rear was Renee Zellwegger, as long as 25 to 1, and as short as 12 to 1.

At best prices, the bettor has an in-built margin of about 6%.

Even better news was available in the Best Supporting Actress category, with the favourite Jennifer Connelly available at 6 to 4

(and 8 to 15), Marisa Tomei at 5 to 1 (and 9 to 2), Helen Mirren at 6 to 1 (and 5 to 1), Maggie Smith at 6 to 1 (and 5 to 2), and Kate Winslet at 12 to 1 (and 3 to 1). Once more the margin favoured the bettor, this time by 7%.

If that was not enough to guarantee a small profit to no risk, you could add to your wad by turning to the Best Actor category, which yielded an advantage to the bettor of 10%, and to Best Director for a massive 16%. Don't believe that 16%? Well, here it is: Ron Howard at 11 to 4, Robert Altman at 7 to 2, Peter Jackson at 4 to 1, Ridley Scott at 10 to 1, and David Lynch at 16 to 1.

The reality, of course, is that some of the better prices moved within minutes of the start of play. Even so, I can personally vouch for the fact that they stayed around long enough to turn theoretical advantage into practical effect, albeit often to somewhat limited stakes.

Still, there is something else we can derive from prices such as these, which allows us an opportunity to profit more generally, and that is what they tell us about the true probabilities of each outcome.

The key question we need to resolve in these circumstances is where the best forecast lies. Is it with the odds-setter who takes a position out of line with that quoted by others? Is it with the most conservative market-maker (the shortest odds quoted)? Is it, perhaps, with the average of all those who decide to venture a price about the outcome?

There are different ways of approaching this question, but one method is to examine the size of the margin (or over-round) implied in the odds offered by each of the bookmakers. In a competitive market, there is some economic justification for expecting that the firm offering the most generous odds overall (the lowest over-round) is the firm that is most confident in its estimates. Likewise, the firm with the highest over-round is the least confident.

The bookmakers in my sample offering the best odds overall (i.e. the lowest over-round or margin) in 2001 for the categories of Best Picture, Best Actor and Best Actress were as follows:

Most generous odds for Best Picture: 117.97% (Paddy Power)
Most generous odds for Best Actor: 115.57% (Paddy Power)
Most generous odds for Best Actress: 110.07% (Coral)

The odds offered by each of these bookmakers respectively about their favourite in each category were as follows:

Best Picture: *Gladiator*   (4 to 5)
Best Actor: Russell Crowe   (7 to 4)
Best Actress: Julia Roberts   (11 to 10)

Applying this system to the 2002 nominations, again using a sample of bookmakers, produced the following result:

Most generous odds for Best Picture: 117.2% (Bet Direct)
Most generous odds for Best Actor: 118.8% (Bet Direct)
Most generous odds for Best Actress: 110.5% (Sporting Odds)

The odds available with these bookmakers respectively were:

Best Actress: Sissy Spacek   (4 to 5)
Best Actor: Russell Crowe   (8 to 13)
Best Picture: *A Beautiful Mind*   (4 to 5)

Although these were the favourites with each of the bookmakers offering the best odds overall, in 2002 there were better odds available elsewhere about the selections in the Best Actor and Best Picture categories.

Thus, Russell Crowe was available at 5 to 4 with Victor Chandler, who were less generous about the competition. The best odds available about *A Beautiful Mind* came courtesy of Ladbrokes, who offered a standout 5 to 4, compensated by the shortest odds about *Lord of the Rings*.

So there we have it. Using this system generated the following bets:

2001

    Best Actress: Julia Roberts (11 to 10)   –   Result:WON

    Best Actor: Russell Crowe (5 to 4)   –   Result:WON

    Best Picture: Gladiator (4 to 5)   –   Result:WON

2002

    Best Actress: Sissy Spacek (4 to 5)   –   Result:LOST

    Best Actor: Russell Crowe (5 to 4)   –   Result:LOST

    Best Picture: A Beautiful Mind (5 to 4)   –   Result:WON

Worth trying next time?

Chapter 22: Second Impressions Are Sometimes Better

First impressions, it is said, count for a lot in life. In the world of horses, odds and betting, they count for a whole lot more. It is the reason why so many promising two-year-olds retain 'short-odds' status however poorly they subsequently perform on the big stage. It is what I sometimes call the 'Tenby effect', to describe the relatively small Caerleon colt whose mediocre performances as a three-year-old did nothing to dissuade punters from taking odds-on about him for the 1993 Derby. After trailing in tenth, all the usual excuses were made, and it was really not until the end of his career that punters were finally persuaded that the odds about him had always been woefully short.

Those with somewhat longer memories may think instead of the great hope of the Aga Khan for that wonderful 1936 season (no, I don't remember it personally), the much-hyped Bala Hissar. Beautifully bred, he was introduced from an early age to admirers as 'the colt by Blandford out of Voleuse, the dam of Theft'. Blandford was the Sadler's Wells of his day. Despite losing his first outing as a two-year-old, Bala Hissar was soon installed as Derby favourite, and his woeful performance in the 2000 Guineas did little to put off the faithful. After all, he had the breeding, but when punters flocked to his trainer, Frank Butters, to ask about his 'Derby horse', they were met with the sharp rejoinder: 'I should like you to tell me first which is my Derby horse!'

In the event, Mr. Butters and the Aga Khan were to triumph after all in the 1936 Derby, but instead with the grey who was apparently not bred to stay, Mahmoud. Unlike his stable-mate this was a horse which had shown form on the track, when losing the Guineas by just a head despite being left at the start.

Form on the track has always been, it seems, under-rated in the market compared to form at the stud farm.

It's an opinion worth bearing in mind, perhaps, before following the hype with your hard-earned cash.

Chapter 23: The Problem With Miss World

What were the true odds that robbers would attempt to steal Miss World's crown on the night of the 2000 annual pageant, and fail? 50 to 1, according to one leading bookmaker offering odds in advance of the first pageant of the Millennium. Identical odds were on offer about a fight between two of the contestants breaking out on TV. 50 to 1 about the totally bizarre? If you think that's a shade generous, then so do the bookmakers, since 25 to 1 was the best you could get about a contestant losing her bikini top. Still, to those looking for a quick turnover, there was still the 100 to 1 available about one of the lovelies revealing on the Channel 5 show that she was, after all, a man.

A bit of fun, perhaps, and should be taken in that spirit, but some specials really can offer value to the discerning bettor, as a number of bookmakers have learned over the years to their cost.

The Miss World contest is potentially such an occasion, but the reason for considering it here is what it can tell us about a certain category of events more generally. To see what I mean, let us for the sake of argument divide betting propositions into three categories.

The first category is the sort of bet where the probabilities are clearly defined. The chance of 'heads' on the toss of a coin, or the red on a roulette wheel, or a '6' on the roll of a die. The probability of each can be objectively measured (assuming the equipment is not bent or faulty), and the bookmaker is able to shade the odds in the knowledge that in the long run the betting public will lose.

The second category is the type of bet with a wealth of established form, like the performance of a horse in a handicap or a football team in the Premiership. Here the bookmaker has to make some judgement of the probabilities, but is aided by techniques of analysis built up over years of studying the impact of past form on future outcomes.

The Miss World contest is very much in the third category. The 'form' of the contestants, as defined in the conventional betting sense at least, is strictly limited, and the consequence is that the odds on offer from different market-makers can be very different. Beauty is

very much in the eye of the beholder, and in this case the bettor is at a clear advantage over the market-maker in being able to review the opinions of a diverse spectrum of those doing the beholding.

The conventional tools of betting analysis can and should still be applied, however, and in particular the well-established 'favourite – longshot bias'. This is the regularity, explained earlier, which indicates that, in the absence of other information, a blind strategy of betting at shorter odds outperforms in the long run a strategy of betting at longer odds.

Almost everywhere that it's been tested this phenomenon applies, and there is no reason to expect that the Miss World spectacular should be any exception.

The last time I studied the form of Miss World was at that 2000 pageant, when Miss India was the general favourite at best odds of 7 to 1. On this basis, she should have been my choice. The problem for me was that another Miss India had won the year before, and surely a representative of the same country wouldn't win again (yes, I was temporarily affected by that dreaded affliction which I have diagnosed in all too many others – the 'gambler's fallacy'). And so, bowing to the fallacy, but cognisant of the bias against longshots, I plumped for an alternative strategy based around the elimination from my calculations of any entrant rated by a mainstream market-maker as longer than 20 to 1.

On the basis of a wide selection of all odds on offer, this left at the time of selection only the following: Miss Colombia, Miss Costa Rica, Miss South Africa, Miss USA, Miss Venezuela, and Miss India herself.

To distinguish between the relative merits of these contenders I decided, in the absence of superior information, to calculate the average probabilities as implied in the odds made available by the different bookmakers.

This gives the following guide to the approximate average odds (best odds in brackets):

Miss India 6 to 1 (7 to 1); Miss Venezuela 6 to 1 (7 to 1); Miss South Africa 13 to 1 (16 to 1); Miss USA 14 to 1 (16 to 1); Miss Costa Rica 15 to 1 (20 to 1); Miss Colombia 18 to 1 (20 to 1).

The solution followed directly. Take the relatively 'generous' 20 to 1 (average price 15 to 1) available about Miss Costa Rica, 22-year-old Cristine de Mezerville Ferreto. She might not have the best

chance, but there was good reason for claiming value.

The alternative strategy was instead to bow to the dictates of the favourite – longshot bias. In other words, back Miss India.

And the winner? Well, Miss India, of course! And the losers? Miss Costa Rica, naturally, and me.

Chapter 24: Looking For Patterns

Did Gordon Banks' stomach upset inadvertently cause the defeat of Prime Minister Harold Wilson's Labour Government in 1970? Mr. Wilson certainly thought so, for who can believe that West Germany could have come back from 2 – 0 down with minutes left to eject England from the 1970 World Cup, if Banks had been in goal. The man whose form was so inspired that he stopped that Pele header would surely have proved more than a match for the predatory Gerd Mueller. With the Germans out of the way, England would have gone on to exact revenge on the Brazilians and successfully defend the Jules Rimet trophy. A nation in jubilant mood would then have re-elected Mr. Wilson with a thumping majority. At least that's how one man saw it.

Establishing a link between events which have no obvious relationship has long fascinated astrologers, of course, but in recent years the advent of computing power has brought such analysis ever more into the realm of conventional forecasting.

A statistic identified by the ABC sports team, just prior to the 2000 US Presidential election, is just one example. The statistical wizards employed at ABC noticed an amazing relationship between the performance of the Washington Redskins in their last home game before a US Presidential election and the outcome of the election. If the Redskins win, the candidate of the party already in office (in this case, Al Gore) wins. If they lose, the candidate of the main opposition party wins (i.e. George W. Bush). A track record which had proved itself fifteen times out of fifteen. The game was mighty close, and the Redskins lost narrowly, some would say as a result of a dodgy decision. The rest you know.

The problem with this sort of statistic is that it smacks a little too closely of the famous 'Superbowl Effect', identified and published by Professors Krueger and Kennedy in 1990 in the *Journal of Finance*. The Superbowl Effect was the link between a team from the National Football Conference (NFC) winning the Superbowl and an improvement in the following year's stock market. Unfortunately for Krueger and Kennedy, after 23 consecutive forecasting successes between 1967 and 1989 it went down in 1990, along with the Denver Broncos.

The reason for these freak relationships is linked to the issue of so-called data-mining, i.e. the idea that data is mined by researchers until an apparent trend is found. The words of Nobel Prize-winner Fischer Black, when such a freak statistic was brought to his attention, are instructive.

It sounds like people searched over thousands of rules till they found one that worked in the past. Then they reported it, as if past performance were indicative of future performance. As we might expect, in real life the rule did not work any more.'

Modern computing power makes it easier than ever to come up with such patterns. They are what statisticians term *spurious correlations*.

There are, of course, plenty of real patterns which can help improve our forecasts, and it is important to distinguish the real thing from the impostor.

The first thing is to ask if it makes any sense at all. If it does, what forecasters do is to test the pattern in a different sample to that where it was found. If it still exists, test it again and again and again until you are sure beyond any reasonable doubt. If it makes no sense, you have to test even harder, and try to come up with an explanation. Proving the incredible is just a little bit harder than proving the merely unlikely.

Chapter 25: The Motivation Thing

Ever since David slew Goliath the shock upset has become a well-documented part of the world's unfolding history. Less clear is why it happens, and how we can be among the élite band of those who can predict when it will.

Some look to emotions and motivation for the answer. Revenge, after all, is a powerful emotion; survival is stronger still. It was a week in May, 2000, that got me to asking the question.

It was the week that European Champions Manchester United fell at Old Trafford at the hands of the team they had vanquished to win the treble, Bayern Munich. It was also the week that languishing Derby did the same to them in the Premiership.

Revenge, emotion? How else can we explain why a Man Utd side which had lost just one home Premiership game all season, scoring 49 times and conceding just 11 goals, could lose to an injury-weakened Derby outfit by the only goal of the game. It wasn't their best side, admittedly, but the team starting with Beckham, Cole and Sheringham would at any other time surely have put at least a couple past the ailing Rams. It was even more remarkable in a May weekend, which like so many May weekends before, had witnessed a feast of goals across the breadth and length of the Premiership.

The theory of motivation does sound plausible, but could that explain why on the same day a Coventry side much more desperate for points than Derby could squander a two-goal lead to lose to Aston Villa. Could it explain Middlesbrough's indifferent display away to an already relegated Bradford? Could it explain why a points-famished Manchester City could let slip two late goals to Ipswich?

In reality, a dispassionate analysis of the cold statistics of these things reveals no apparent correlation between the need to win and the actual win. Indeed, the evidence suggests that teams that need the points desperately do no better on average than teams that need them somewhat less desperately, or even than teams that don't really need them at all.

Instead, better teams usually tend to outperform lesser teams, after allowing for home advantage, and this is unaltered by the relative need of these teams to win.

This is not to say that in any individual circumstance those with a special insight or talent are unable to spot likely upsets. This is perfectly possible, and is quite consistent with the cold statistical approach.

The reason that both approaches can work is that what is true on average is not always true in the particular. To clarify, a team that needs the points playing a team that doesn't is in general likely to fare no better than if the roles were reversed. In any particular case, however, the exception may prove stronger than the rule. Finding that exception requires rare insight, or luck.

Without this insight the better play, according to the statistics, is either to ignore the 'need to win' factor, or if anything to go the other way, on the basis that the odds will on average over-reflect the common misperception.

Outside the world of football this phenomenon has been treated with less statistical rigour. Instead, we are treated to an array of anecdotal evidence. Tales abound, for example, of the 'hungry' boxer, with limited skills, who overcomes the mighty champion. Buster Douglas knocking out Mike Tyson, Hasim Rahman despatching Lennox Lewis, are two obvious examples. In truth, however, these really are exceptions, and the vast majority of outcomes reflect the relative class of the opponents.

Even so, intuition would indicate that motivation might play a more influential role in a one-off fight between two individuals than in a game between two teams who are playing every few days. The reason may lie in the fitness aspect so vital to modern sport. A motivated boxer is likely to be fitter and sharper, and this can be decisive. This is surely less critical when considering the relative merits of two teams of professional football players at the top end of the game. Even if one side is fitter than the other, this is likely to be public knowledge, and well and truly factored into the odds.

Similarly, in an individual sport like boxing or tennis, an off-day can spell disaster. The famous first round Wimbledon exit of Martina Hingis to unseeded Jelena Dokic is a well-known example. Not until a high profile Florida court case hit the headlines did we hear tell of the effect that a stalker might have had on the outcome!

And so back to those twin motivations of revenge and survival, and how they can help us in unravelling the value in that Champions

League Final or that opening Test Match. Who will be most up for it, who will be seeking to even the score? Will it be this; will it be that?

In general, you needn't worry too much about any of those considerations. Instead, just follow the form. And if you get it wrong, don't get emotional and don't seek revenge. Keep cool, keep calm and get even.

Chapter 26: Noise

More than 30 years have elapsed since a computer program worked out the result of a mythical encounter between Rocky Marciano and Muhammad Ali, but the 2001 'virtual' Champion Hurdle, Champion Chase and Gold Cup stemmed from the same idea. If it isn't going to happen in real life (and with the abandonment of that year's Cheltenham Festival it wasn't), we sure want to know what would have happened if it had. A sort of sophisticated Pools Panel, you might say, but a whole lot more fun. For the record, Rocky knocked out 'The Greatest' in the 13th round of a bruising encounter, while Istabraq, Tiutchev and Legal Right showed what happens when hard logic is showered with a sprinkling of stardust.

All good fun, but behind the idea lies something which may be worth considering in implementing any betting strategy. It boils down to what economists call 'noise', or the tendency of any closed system to be afflicted by random factors which cannot be predicted in any systematic fashion by a model. Over the long run, noise tends to even out, so that a good model will overestimate and underestimate performance indicators in equal measure. The predictions will be unbiased. In the short run, however, the more noise in the model, the more risky any bet based on the prediction will be.

Let me give an example. If there is no noise at all, i.e. no random variations, then any mistakes in predicting the outcome of an event are the sole fault of the forecasting system. An example is the effect of gravity on an apple. A model of the way the world behaves will predict that if you drop the apple it will fall. There is no noise in the prediction, apart from the minor effects of air resistance and the like. However, now take a race like the Grand National, and the influence of random factors reduces the confidence in any estimate, however sophisticated the forecasting system. It may get it right in the long run, but the long run can be a very long time, and certainly a lot longer than the time it takes to run the race.

Followers of forecasting systems must, therefore, take account of the amount of noise in the system before deciding how much to stake, and how much confidence to invest in any individual prediction.

In horse racing, chases are likely on the whole to be more noisy than hurdle races, which are in turn likely to contain more noise than five-furlong sprints. Of course, the form may be more established in the chase than in the novice sprint, but we are talking here of random influences additional to that contained in the form book, such as it exists. Again, some sports are likely to contain more noise than others. A game where points are scored quite regularly might be expected to produce a less random result in a given period of play than a game where points (or goals) are scored infrequently. In this sense, basketball, for example, is likely to be less noisy than football. Generally, noise is likely to contribute a greater effect to the outcome where the frequency of scoring is low, and when the time period over which the game is played is short.

Sometimes, of course, there is no straightforward way of thinking about the effect of these random influences. Take the Boat Race as an example. Those who can remember or know of the sinkings, the most recent of these (at least during the race) being the demise of the Cambridge boat in 1978, will guess that there is quite a lot of noise in this event, in every sense. In fact, the favourites tend to win quite regularly, which suggests that apart from the odd moment of mayhem the smooth progression of each team to the winning post takes place in a reasonably orderly and predictable fashion. The choice of station, the undulation of the waves, the baying students on the banks, really doesn't seem to cause as much noise as even one small cox.

Which means that you may be on to a good thing by siding with the favourite, to win by the margin implied in the odds. Thus, 4 to 6 Oxford should mean an Oxford victory, just. In which case you should back them to do so – just. Try it some time.

Chapter 27: Betting On A Leadership Election

'A week is a long time in politics,' once declared Harold Wilson. It was a sentiment echoed in the triumph of Kenneth Clarke in the final ballot of Conservative Members of Parliament, prior to the 2001 ballot of all party members nationwide.

That victory marked the latest episode in a turbulent few weeks which started out with the Member for Rushcliffe being quoted at approaching double figures in the days before the announcement of his decision to stand. That decision, announced on Tuesday, 26 June, came to the surprise of many. Victor Chandler, for example, chopped him from 8 to 1 to 100 to 30 after the announcement. The surprise was in part the result of the low profile of the man who according to press reports had been leading an ostensibly Trappist existence over the preceding few days. No surprise to yours truly, however, who as a fellow member of Notts C.C.C., was engaging him in an illuminating chat after stumps on the preceding Saturday.

The strangest thing about the leadership election campaign prior to the ballot of MPs, however, had not been the swings and roundabouts of fortune for the contenders, but rather the rollercoaster of inconsistent odds offered by the market-makers. Odds about Clarke shortened markedly on the morning of the final ballot, for example, until only Paddy Power were willing to go any longer than 2 to 1, and then only to a maximum of £14. By the time of the bell, Blue Square were offering 4 to 7 Duncan Smith, 3 to 1 Clarke, and 7 to 2 Portillo. Given Portillo's so recent quote of 1 to 3, this was yet another example of the cricket paradox, whereby it is all so often possible to bet on every eventuality at a good shade of odds against if you just have the patience to wait.

In the end, then, all we learned about the skills of political market-makers from this election is that they cottoned on to the fact that Mr. Portillo was losing ground.

No sooner was the result declared, however, than we were back to that same rollercoaster, this time equipped with a strange flip-back. Just look at the logic. If Iain Duncan Smith was such a hot

shade of odds-on to win the election outright before the poll of MPs, how come that within moments of the declaration, all firms (bar Coral – who adjusted fast) were now quoting Clarke as the hot favourite. After all, the odds shortly before the declaration, in the fixed-odds and spread markets, were generally of a mind that Duncan Smith and Clarke would make it through, and yet Mr DS at that time was still being quoted at odds as short as 1 to 2.

Perhaps the logic lies in the belief by some that Duncan Smith would easily beat Portillo, but not Clarke, and that the chance of Portillo coming through to the final play-off skewed matters.

Perhaps the fact that Clarke scored more votes than expected among MPs had an impact. The problem with that analysis is that Conservative MPs make up only one in 2000 of the party membership. That apart, it was always expected that all three candidates would poll somewhere between 50 and 60 votes. So the difference between the actual and expected vote was marginal at best.

All we can say with confidence is that the odds-setters themselves had very little confidence in the odds they set about internal Conservative Party matters. Indeed, this inability of pundits and market-makers to fathom the mind of the Conservative Party has echoes dating back to the accession of Alec Douglas-Home to the job in the early 1960s. They were no better informed in 1997, when the Clarke-Redwood pact led to a drastic shortening of the former Chancellor's odds, just at the time as the Tory MPs were recoiling so heavily from the deal as to give the prize to the Member for Richmond.

I decided, therefore, that this was one event where following the odds was for mugs. Instead I used my so-called 'common sense' in guessing that a bigger name would always appeal more to the rank and file. In other words, I was banking on a glorified version of what American political pundits tend to call the 'name recognition' factor.

The rest, as they say, is history!

Chapter 28: You Can't Beat Reliability

Who would you back over a mile and four furlongs – Lester Piggott on a carthorse, or John McCririck on Nijinsky? The sad thing for those of a Corinthian spirit is that in real life it is likely that Big Mac would be astride old Steptoe's nag.

The best jockeys attract the best horses, the best football clubs attract the best players, and the best drivers attract the best cars. Which is why there are rarely more than two or three real contenders for the Formula 1 World Drivers' Championship.

Now assume for the sake of argument that there is little to choose on the tyre front. Little either to choose in latent ability. If these factors were even, that doesn't mean that equivalent odds represent equivalent value. For that we need to add reliability and predictability to the balance, for therein lies the key to value.

What Formula 1 fans call reliability, economists and statisticians call volatility, or risk. Moreover, the very same economists have constructed a model which estimates what extra return is required to compensate for an additional dose of risk. This is sometimes known as the risk premium, and makes up part of what is called the 'Capital Asset Pricing Model'.

Applying the essentials of the model to Formula 1 racing, this means that a conventional investment strategy would require better odds to side with an unreliable driver or car, even if there were no difference in how well they might be expected to perform on the average. This is why we need to examine both the mean (average) performance and the variance (the dispersion of results around this average). We want to maximise the former, but minimise the latter.

In other words, if the McLaren and Ferrari cars were equally good, and would both be expected on best estimates to win six races, we should require better odds to side with the car that achieves this in the less consistent way. The same goes for the driver.

All too often, of course, the faster car is also the most reliable, the faster driver the same. In these cases we can feel all the more

confident about taking short odds. So it's Schumacher to win in the Ferrari. That is what I call the appliance of betting science. Others might, of course, call it 'déjà vu'.

Chapter 29: Cricket Betting

Backing the outsider of three at the racetrack never was the wisest adage in the pantheon of betting folklore, but there are times when backing the 'insider', or shortest priced of three, is sometimes positively worse. I refer to those occasions when the bookmakers conspire to offer the draw in a cricket match as the hot favourite. The first time I was asked to look at this was just before the Second Test at Old Trafford in 2001, between England and Pakistan. One could accept that the weather forecast was not glorious, and that the expectation of a low, slow surface at Old Trafford was expected to favour the bat. Still, an offer of evens about the draw, by Surrey Sports, was scandalously short, and even the standout 13 to 8 on offer with the Tote was notable more for its relative, rather than its absolute, generosity.

The fact is that the odds about the draw in a cricket match are, on average, the worst possible of the three options, and yet however short the bookies go the evidence suggests that the madding throng of punters will follow them in. It is as if punters believe that cricket market-makers have some special insight into the weather shared by none since the pre-hurricane days of the BBC's Michael Fish. Indeed, a cramped shade of odds about the draw is taken to foreshadow the near certainty of five days of torrential rain or ponderous black clouds.

Life isn't like that, but it doesn't take much to encourage the bookies in their ways. Despite a respectable run rate on the first day, bolstered by 53 boundaries, the chances of England were out to 7 to 1, as the draw shortened to 1 to 2. And still the money went down. By the third day, it was the turn of Pakistan to lengthen to 7 to 1 and the draw stood at 1 to 3. Sunday saw the prices levelling off, at 5 to 2 England, 6 to 4 Pakistan and 13 to 8 the draw. And just for the record, the final day opened with England still at 5 to 2 to pull off a victory rated no more than a one in eight chance after the first day's play. Pakistan were on offer at 7 to 2 and the draw a bare shade of odds on, at a best-priced 10 to 11.

Swings and roundabouts, as they say, and of course you could have bet on all three outcomes for a very healthy profit at some

point. You could indeed, but hindsight is a wonderful thing, and you cannot be sure to repeat the trick on any given future occasion. Even so, there is some sense in the argument, inasmuch as cricket odds do tend to swing a little too sharply in response to the latest day's play, at least if you play at the best available odds across the spectrum of bookmakers.

Which brings us to a couple of rules of thumb which might prove useful when trading on the cricket.

First, ignore the draw. However good the odds seem, it is very unlikely that they represent value. Too many people have plunged too much, too often, on the draw, for the bookies not to take notice and advantage accordingly.

Second, the best value is likely to obtain during the course of the match, as one or more bookmakers offer a standout price which can only represent an over-reaction to a single day's action.

Sometimes, however, your heart really must rule your head. On the assumption that most readers follow the home side, why not have a fiver on England at the start of every Test to win the series?

Conscience clear, you can now wait for day two. And watch carefully, for there is one thing for sure in a Test series: whoever wins at the cricket, there should be only one winner in the battle between sophisticated bettor and bookmaker. And that winner should be you!

Part Three: Beating The Tote

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Chapter 1: When Betting Longshots, Getting What You're Given Really Can Be The Best Option

It's a balmy summer evening at Newmarket's July course, as you study the horses parading before the next race. That mount of Dettori's looks particularly well. So you walk the few yards to the row of betting booths representing the Horserace Totalisator Board, and stake your last fiver that the favourite will indeed frank the form. Or do you? Well, it's definitely a lot more convenient than trekking hastily back to the bookies' boards lining the long straight, and you're certain to get on in time. You can't be sure of the price you're getting, of course, but there's no reason to expect a bad deal, is there? According to standard economic theory, you would be right. The so-called 'Efficient Markets Hypothesis', to be precise, suggests that the returns to investments of similar riskiness placed in any of a number of complementary markets should even out over time. Whether you invest with the bookies or the Tote, therefore, you might expect the same return. Otherwise clued-up investors should step in and mop up any value until it disappears. But do they? In most markets, the weight of evidence suggests that they do. Not so, it seems, at the racetrack. There are systematic differences in what you can expect to earn for every pound staked, depending on whether it ends up in the Tote till or the bookie's satchel, and this difference is especially pronounced at long odds. This so-called 'anomaly', as finance specialists are apt to call it, has been guessed at for years. The first large-scale academic study to prove what was always expected, however, can be traced to the work of two American academics, at the time operating out of Universities in Chicago and Kentucky.

Paul Gabriel and James Marsden examined 1427 flat races from the 1978 British flat racing season. Using a range of statistical tests, they confirmed that the Tote returned on average a higher amount of money to a unit stake than the bookmakers, and that this was especially so early in the season.

Since then a number of other studies have been published, each supporting the finding of a higher average return at Tote odds than at starting price. These later studies do, however, suggest that the disparity is concentrated at odds of 5 to 1 or so and above, and the longer the odds the greater the advantage to the Tote. Below 5 to 1, the disparity is less clear. There is also the added advantage with the bookies that you might just beat the returned price if you shop around.

So why bother with the bookmakers when betting the longshots? The answer lies in the nature of the beast. That 10 to 1 shot might end up favourite, but at the moment it's good value and the bookies will allow you to lock in your advantage. Not so the 'nanny goat' (Tote). If you realise that the 10 to 1 is good value, no doubt there'll be plenty of others who realise the same thing. By the time the good thing is not such a good price, it's too late. You've paid a fixed stake, but you'll get back what you're given.

The lessons to be learned from all this research are clear enough. Unless you know the price currently available is that little bit too big, steer your cash towards the Tote if you expect the starting price to be in the region of 5 to 1 or longer. Below 5 to 1, and you're spoiled for choice, although there is some evidence that money bet on sure things, especially when they are carrying popular jockeys, is best placed in the bookies' satchels. Oh yes, and if you do spot value, especially early on, seek it out and lock it in. If you're right, it won't last long, no matter how you bet.

Chapter 2: Steaming Into The Tote

It's Champions day at Newmarket, and with one race left on the card you are left pondering your options. Suddenly you are thrown back in time to 'Arc' day, at Longchamp – Sunday, 1 October 2000.

In particular, your mind is drawn to the fourth race of that day, the Prix de l'Abbaye de Longchamp – Majestic Barrière. Your initial pick, Bertolini, stood clear above the others as a general favourite at morning prices, followed (at best prices) by Pipalong, Sampower Star, Superstar Leo and Primo Valentino.

After these came a game Irish sprinter named Namid, trained by John Oxx and ridden by Johnny Murtagh. Indeed, Chandler, Coral and William Hill were of like mind in offering 10 to 1 to any takers. In the event there were so many takers that you were unable to find anything better than 100 to 30 by the time that you were ready to follow the money with your own hard cash. Unless, that is, you turned to the French equivalent of the Tote, the so-called *parimutuel*. Always available at the equivalent of about 6 to 1, the steamer in the betting offices was, at the off, still available on the *parimutuel* at almost twice the price you could get with the bookies. In the event, it was returned at 5.2 to 1 (1.8 to 1 a place), after storming home to a facile victory over Superstar Leo and Pipalong. For the record, the early-morning favourite, Bertolini, was beaten home by six others.

What makes this example so interesting is that the *parimutuel* price was rather lower than you could have obtained with bookmakers earlier in the day, but significantly better than the final price available.

Studies of the phenomenon of steamers have been published in some of the foremost academic journals in the world, and they all reveal the same thing, explored earlier in this book. A horse which shortens in the market is a better bet, at any given price, than one which does not. For example, a horse which shortens from 10 to 1 to 100 to 30 (like Namid) represents better value, even at the 100 to 30, than an equivalent animal which had always been available at 100 to 30. That's the good news.

The bad news is that the final price is, on average, not good enough to translate this observation into a long-term profitable betting strategy. By backing the steamer, all you can expect is to lose

significantly less than by backing a horse that had not shortened in the same way. Even so, at the original price, or at any price much above the final price, you would indeed expect to turn loss into profit in the long run. That's a lesson which followers of the Namid experience should learn. At the 100 to 30, the value had gone. At the 5.2 to 1 the value was, in principle, still available. By using the information contained in the movement of the bookies' odds, and then searching out the French Tote odds, you were well ahead in value terms before the first sprinter exited the stalls.

Wake up now from your fleeting journey through time, and you are back at Newmarket considering which of the 30 runners lining up for the seven-furlong NGK Spark Plugs Handicap is likely to romp home first. It's a difficult choice until you remember the simple lesson you learned at Longchamp. You are looking not for the most likely winner but for the best value. After all, while value doesn't always translate into winnings, over the long term it surely will.

This simplifies the choice considerably, and brings straight into the frame the Richard Hannon-trained three-year-old, Social Contract. Suited on form to the distance, well drawn, and wearing blinkers for the first time, the 25 to 1 offered generally with the bookmakers was if anything slightly generous. Yet this same horse was readily available at more than three times that price on the Tote, and there were few signs of any convergence with the board prices.

In the event, the blinkers worked, and five-pound claimer, Paul Fitzsimmons, eased home to land the odds, giving backers on the Tote a final payout of 79.4 to 1.

Chapter 3: Betting On The US Tote

My own on-track experience of US horse racing started at Churchill Downs, the home of the Kentucky Derby. It costs only $2 (little more than a pound) to gain admission. It's exciting, colourful, clean and comfortable. Best of all, there is a simple well-established way to earn a modest and consistent profit. I'll tell you about it.

First, the basics: in the USA, there are no bookmakers at the racetrack, only the parimutuel (what we call the Tote). You can bet to *win*, to *place* (must come in the first two), or to *show* (must come in the first three). There are also all sorts of so-called exotic bets, like the 'trifecta wheel', where you bet on six horses to finish in the first three in some predetermined order. You can even bet 'odd or even' on the card number of the horse you think will win. It's like a living roulette game, and the take, at only 5%, is little more.

There is also a way in which it may be possible to use the odds in the win pool to take a profit from the place and show pools.

The method relies on a mathematical formula (originally called the Harville formula), which sounds complicated but is quite simple to operate. Essentially, it works like this.

First, find the win odds. These shift about, but because of the big pools they don't shift that much, and can be observed from the huge electronic boards easily visible from everywhere at the track. Once you've identified these, the formula tells you what the odds should be that a horse will finish second or third. If the odds are better than they should be, you simply bet to place (to finish in the first two), or to show (to finish in the first three).

You can buy special calculators to do the sums for you, the most famous being William Ziemba (Dr. Z)'s special 'Beat the Racetrack' calculator. Even without the calculator, there are some simple rules which will help you on your way.

First, don't back longshots, but instead concentrate on shorter-priced horses, especially if they are maidens (have not won before) or have not run for a while. Most punters at the US racetrack think such horses will either win or come nowhere. This is the so-called 'Silky Sullivan effect', named after the horse of that name whose career consisted of little other than stunning victories or ignominious

defeats. Not for Silky second or third place. If he couldn't win, he wouldn't try at all.

The more astute punters know from the statistics, however, that Silky Sullivans are more rare than imagined or implied in the place and show odds, and take advantage of this mispricing to reap small but consistent rewards.

So you have two choices. You could buy a racing calculator, and bet when the odds to place or show are too high. Otherwise, you might look for horses priced at, say, 4 to 1 or less. If these horses have not run for a while, or are maidens, bet on them to place or show. If and when they finish in the first two or first three you will, according to the system, likely be returned a small but quite consistent fistful of dollars.

So keep your head, don't risk too much, and you can have a wonderful day out at the US racetrack – and leave with a wallet which is bulging that little bit more satisfyingly than when you arrived.

Chapter 4: US Horseracing On The TV

The wonderful thing about betting on American horse racing is that you don't need to know anything about the horses to do creditably well. Instead, much of what you need to know is contained in the abundance of odds displays everywhere in view at the racetrack.

There may be a limited number of readers of this book who have the money, time and opportunity to turn up in person at Gulfstream Park or Golden Gate Fields or any of the host of other exotically named racetrack venues. But you don't need to. All this and more is available at the flick of the remote control. I am referring, of course, to the evening (UK time) racing from across the States, beamed live and free each weekday to our shores.

Let me take you on a trip back in time, to Wednesday, 10 January 2001, at 8.50 pm, to illustrate the message. Viewers of Sky Sports 2 had just been treated to all that is best, and worst, about football, in this case courtesy of Liverpool FC. Some wonderful touch play, squandered by abysmal finishing. Crystal Palace were still half a game away from a 2 – 1 victory. Those without the Racing Channel were welcome to the half-time comments of Kenny Dalglish and co., while those blessed with the choice were able to turn straight to the action from Race 8 at Laurel Park.

The 'morning line' estimates (similar to the trade press starting price forecasts in the UK) about each of the entrants were clearly on display, as well as the current odds. These are the so-called 'parimutuel', or tote odds. In the UK you can bet on the American racing to win, or each way, or you can go for the Exacta (the first two in the correct order). Other bets available at the racetrack are the place bet (to finish in the first two), the show bet (to finish in the first three), the Trifecta (the first three in the correct order) the Superfecta (the first four), and a host of other fascinating options, touched upon earlier.

Now let's focus on the action. Holly Jolly, the no. 1 horse, was predicted to start on the morning line at 2 to 1, but the weight of money in the pool had shortened it up to evens by the time I decided to miss the Sky panel's expert analysis of the big match. By the off it was 4 to 5, showing evidence of late money. The only other horses

to shorten from the morning line were no. 6, the bizarrely named Hunka Hunka Lori Z (from 7 to 2 to 3 to 1), and no. 4, Color Me Happy (from 3 to 1 to 5 to 2). Neither of these showed any signs of the late money effect. The odds about all the other horses had lengthened since the morning forecast.

Turn now to the findings of Peter Asch and Richard Quandt, of Rutgers and Princeton Universities respectively. Employing data from 729 races at the Atlantic City racetrack, Asch and Quandt reported that the final parimutuel odds tended to be lower than the predicted (or morning line) odds for winners. Moreover, in the case of winners, the later in the betting period the money was laid, the stronger was this effect. Asch and Quandt proposed an explanation of this finding as the withholding of smart money (money bet by people with superior information) until late in the betting period, in order to avoid giving out market signals which could depress the final payout odds. As in any tote system, it is not possible to take a price.

In other words, the best horses to bet on are those which have shortened since being published in the morning line, and particularly those which have shortened, or shortened further, late on. Add in to this the well-established favourite – longshot bias, which applies in the USA as well as the UK, and which dictates that the expected return to bets at shorter odds tends to outweigh those at longer odds.

Applying all this theory and evidence at Laurel Park, the clear value lay in Holly Jolly, the 4 to 5 favourite, with some signs of support for numbers 4 and 6. Of the latter entrants, there was little to distinguish between them, each of which had shortened a little in the market with no late surge of support.

These figures simply drive the bet: two Trifectas, one on horses 1, 4 and 6 to finish in that order past the post. The other bet, of course, is the Trifecta on 1, 6 and 4.

In the event, it was no. 1, Holly Jolly who took the honours, followed home by nos. 6 and 4. The Trifecta payout was $31 to a $2 stake, or in this case $31 dollars for minimal risk. Of course, this was too good to be true, in the UK at least, with the bookies unwilling to accommodate further than the simple Exacta. So it's two Exactas, coupling 1 with 6 and 1 with 4. Ah well, at least it's a profit.

Now back to that Worthington Cup semi-final. How are the bookings going?

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Part Four: Beating The Spreads

Chapter 1 : Profit Margins And Profitability In The Spread Markets

The bookmaker offers you evens that the coin will land on its head, and evens that it will land on its tail. For a fair coin, those are fair odds, and in the long run both you and the bookmaker will come out level. Of course, the bookmaker has to earn an honest crust, and so a notional profit margin is built into the odds, known as an 'over-round.' We've illustrated how this works elsewhere in this volume, but it bears repeating. Imagine the bookmaker shades the odds about the head and the tail to 4 to 5 each. At these odds, you have to bet £10 (£5 on heads and £5 on tails) to ensure a return of £9 whichever comes up, i.e. £4 plus your £5 stake returned on the winning bet. The over-round can be calculated as 10 divided by 9, i.e. 1.111 (or, more usually, 111.1%). You can apply the same logic to any number of options. The smaller the over-round the less in-built advantage the bookmaker has in the odds, and if the total is less than 100% the tables are turned. For fixed odds, this is a relatively straightforward calculation. What about spread betting markets?

Take the example of a Test Match between England and Australia, and a performance index for the teams. Assume for a moment that the game has to end with one side winning, so that in the event of a draw there would be a sudden-death shootout of some kind. Now award 25 points for the win, and none for the defeat. What would the market-makers offer about each team? The favourite would be expected to earn more than 12.5 points, and the stronger the degree of favouritism the higher the expected points make-up. Say the quote is 16 – 18 about Australia and 6 – 8 about England. The spread in each case is two points, out of 25 points available. The over-round is quite simple to calculate in this sort of case. Whether you buy or sell England or Australia, it is given by calculating the share of the 2 point spread in the total 25 on offer. This is 2/25, or 8%.

In fact, of course, the draw is a very real possibility, and the market-makers usually quote a spread based on 25 for a win, 10 for a draw, and zero for the loss. The problem is that because we don't know the likelihood of a draw in advance, it makes the calculation of the

over-round much more complex.

Assume now, for example, that IG's opening quote about the match was 16 – 17.5 for Australia and 6 – 7.5 for England. Say that Sporting Index, on the other hand, offered 15 – 16.5 and 6.5 – 8 respectively. What we know, for sure, is that in these circumstances the over-round facing the bettor is much lower than the over-round contained in either of the individual sets of odds. This is because the bettor faces an effective spread of only 0.5 between the best price at which it is possible to buy Australia (16.5) and the best price at which it is possible to sell (16), simply by shopping around.

Better still, whenever two quotes touch, the over-round facing the bettor is zero. For example, if IG offered a spread of 6 – 7.5 about England, and Sporting offered a quote of 7.5 – 9, the offers would touch at 7.5. In such a case, the effective over-round facing the bettor with access to both offers is zero. The over-round implied in the odds offered by an individual firm might be of academic interest, but no more than that.

In fact, the implicit over-round in the quote offered by any individual market-maker tends to be lower when the market is less volatile (or more predictable), and lower again when there are fewer options. The final of a match between two teams, one of whom must win, like the Superbowl, on a 100 – 75 index, should as such represent particularly good value. The worst over-rounds are at the start of such events as a snooker competition, where there are a large number of players. Here the implied over-round reaches as high as 40%, and more.

Unless you're confident enough to believe that you can beat the bookie and the over-round, the real trick is to choose those markets where more than one firm are offering quotes, and concentrate on those where the spreads touch, or where the difference is relatively small. The bookings market (based on the number of yellow and red cards issued in a football match – 10 for a yellow, 25 for a red) is ideal, as it is quite common here to be offered, say, 44 – 48 by one firm, and 48 – 52 by another. By having access to both these spreads (they intersect in this case at 48), the effective over-round facing you is zero (and it's deduction-free). If you lose now, it's because of bad judgement, or bad luck, and not because of some inflated over-round which can be blamed on the bookmaker. In other words, it's a level playing field, and your fortune lies very much in your own hands.

Chapter 2: Avoid The Christmas Syndrome

Take two teams, packed with defensive talent, but imbued with rather less flair up front. Put these teams together and what can we expect? The irresistible force meeting the immoveable object? Not really. Rather, it's likely to be a case of the immoveable object meeting itself. Maybe not the most entertaining spectacle, but certainly a happy betting medium. Let me explain.

The value in such a match should lie in an awareness of the propensity of bettors to succumb to the Christmas syndrome, i.e. the tendency to *buy* too much. In any game where there is an unlimited upside, but a strictly limited downside, the evidence suggests that spread bettors tend to bet in the hope (even expectation) that the numbers will exceed rather than go short of the spread. For instance, if the spread about the number of points in a rugby match is 40 – 43, then the maximum downside of a buy at 43 is 43 times your stake. The maximum downside of a sell is in principle unlimited, however, and in practice potentially very painful. If this theory is correct, then bettors will tend to buy rather than sell the points, buy rather than sell the number of goals in a match. Partly this may be to reduce the risk involved in the unlimited downside of a sell that goes pear-shaped. Partly, though, it may be because a significant element of those who bet on the matches want to combine winning with enjoying. There is surely more pleasure in urging on the sides to score, or to get stuck in, than flinching at every sight of player near goal or even player near player. As bettors in the conventional spread markets have become more sophisticated however, this pattern has no longer tended to hold the force of old.

The big event, like a World Cup Final or Super Bowl is, however, not just another bookings play, or Nationwide League total goals trade. Many of the traders, beer in hand, will be betting to liven up the game, particularly in running. Such an approach normally goes hand in hand with a buy strategy. This is the time, at least as a long-term strategy, for the more sober judges to sell – to sell supremacy and to sell points.

In other words, wait till the crowd gets hot. Now is the time to play it cool.

Chapter 3: Exploiting Disparities

On Tuesday, 7 November 2000, it was 4 pm in the UK, and the polls in the US Presidential election had recently opened on the West Coast of the United States. At that time, IG Index were quoting the Presidential election as follows:

Bush: 265 – 275 electoral votes; Gore: 265 – 275 electoral votes.

270 votes were required for victory.

At the same time, Victor Chandler were offering Bush at 8 to 15 and Gore at 11 to 8. The question is – could they both be right?

At first sight, the answer must surely be no. After all, the mid-point of the IG Index quotes are 270 apiece, i.e. level-pegging, while Chandler has Bush as almost a 2 in 3 chance.

In fact, the answer is yes, at least in theory. Let me explain. Imagine that 260 votes are in the bag for Gore and 250 for Bush. One state is outstanding, with about 30 votes.

Bush is about a 1 to 2 shot to win this state, and so the best estimate, mathematically, of the number of extra votes he will get is 20, i.e. a 2 in 3 chance of getting the 30. Gore is about a 2 to 1 shot to win the state, and so the best estimate of the number of votes he will obtain is 10, i.e. a 1 in 3 chance of getting 30.

Chandler's odds, allowing for the profit margin, are close enough to reflecting these probabilities, and so the odds add up, on this scenario, to an expected total of 270 apiece. Sounds incredible, but not half as incredible as what actually happened on election night!

So much for the mathematics. In reality, of course, Gore and Bush didn't have well over 200 electoral votes in the bag, and the real reason for the difference between the odds on offer is probably rather more straightforward. Either there was a significant difference of opinion between market-makers at IG and Chandler, or else someone was a little slow to react to unfolding events. Bettors who were alert to this market imperfection could play these competitors off against each other, to their significant advantage.

These imperfections are growing all the time, and the Chandler/IG disparity represents just one more example of the many and varied opportunities on offer to the discerning investor looking to make a profit with limited risk.

The best genuine value, of course, is usually to be found where it is most difficult to find. It takes time, and a little effort, but that's why the rewards are there. Invest the energy, and the value can be wonderful.

The Iowa Electronic Markets web-site (www.biz.uiowa.edu/iem) is an example. You can bet (trade) on all sorts of markets, in a way similar to our spread markets. During the last US Presidential election, for example, those wishing to favour one or other of the Presidential candidates could bet with a myriad of fixed-odds outlets, on the spreads with IG Index, Spreadex and Cantor Index, or at the Iowa Electronic Market. And it's the latter option which offered the real value.

A little close inspection was all that was required for a handsome dividend, to low risk. For while Spreadex were quoting Bush supremacy over Gore (in terms of the popular vote) at only $0 - 0.6\%$, and Cantor at $0.5 - 1.1\%$, the Iowa Electronic Market had Bush winning handsomely in terms of votes cast. In the event, Gore won comfortably in terms of the popular vote, but whatever had happened, a little judicious staking across national borders was a real golden path to Shangri La.

Chapter 4: To Arb Or Not To Arb: That Is The Question

You flick to teletext early on a Friday morning, and turn straight to the quotes on the match between Everton and Liverpool. Let's say that IG Index are offering a spread of 40 – 44 about the number of bookings in the match. For each yellow card 10 points are awarded, and 25 for a red. On that basis, IG's market-makers are expecting, in a statistical sense, slightly more than four yellow cards to be issued in this match. That means that you can sell bookings at 40 and be assured of a profit if there are three yellow cards (or fewer) and no red, or buy at 44, and earn a profit if the match produces at least the equivalent of five cautions. The problem arises when you sell, and the cards fly, or when you buy and the referee has an episode of unnatural leniency. If only you could win either way. Sometimes you can.

The opportunity to win either way occurs whenever one of the market-makers sets a quote totally outside the quotes of another. Let's say, for example, that Sporting Index set a quote for the same match of 45 – 49 (IG, remember, are offering 40 – 44). In that case, you can sell bookings at 45 with Sporting, and buy simultaneously with IG at 44. Now whatever happens in the match, you are guaranteed a one point profit. To illustrate how this works, consider what happens if six yellows are issued and one red. The mark-up (final total) is 60 plus 25, i.e. 85. This would not be good news if you had only sold at 45 with Sporting, as you would be facing a loss of 40 points (85 minus 45). Fortunately, you win 41 points from IG (85 minus 44). The net gain is one point. Consider the alternative scenario in which only one yellow card is issued. Now, buyers of bookings at 44 with IG face a 34 point loss (44 minus 10), but sellers with Sporting earn a 35 point profit. Once more, the net gain is one point.

This riskless profit, earned by simply buying and selling with different companies is known as an *arbitrage* (or, more commonly as an 'arb'). It occurs most usually in the bookings market, the shirts market, and sometimes in the time of goal markets. Much less

common is to spot an arbitrage in goal supremacy or total goals. The question is what to do when you turn to teletext or the Internet, or your newspaper, and spot this glaring 'arb', with minutes still to the opening of trading.

A lot depends on the company responsible for the arbitrage, and sometimes on your trading record with them. Sporting Index, for example, have usually been willing to maintain the price they set before the opening of trading, at least for a short period, to small stakes, but only to traders adjudged by them not to have overstayed their welcome in this particular field of operations. City Index adopted a very different policy when they operated as a separate company in the sports spread markets, tending to shift the line at 'warp speed' whenever their quote was out of line with the other companies. This ensured that you were unlikely in reality to take advantage of any apparent arbitrage position.

In other words, different companies have different policies, and only with experience can you ascertain their current policy.

The bottom line is that arbitrage positions do persist, which in a way is a healthy sign, inasmuch as it indicates that the spread companies are not explicitly colluding on price. On the other hand, the position at advertised prices does not last long, if at all, and you can never be sure of obtaining the quote you want to the stakes you want. At best, you will normally earn a small return, for the risk of not being able in any individual circumstance to close two positions at a prevailing arbitrage position. It is perhaps better to view an arbitrage position as an offer of good value by at least one of the companies. If this fits in with your own perceptions of the value option, consider taking it before it disappears. After all, genuine value rarely lasts long. Beware, though, of earning a reputation as an 'arb shark'. You may find yourself shunned.

Chapter 5: Beware The Downside!

Imagine that you are on a hiking expedition in the American wilderness, miles from base, and low on supplies. Suddenly you come across a bridge that crosses a chasm and which provides a neat short-cut home. You assess the risks, and counter each one by the correct use of the latest safeguards available to the sensible trekker. So goes the story told by portfolio managers in a 1995 Wells Fargo–Nikko publication called *Global Currents*. The tale ends (and more importantly, so do you) as you successfully cross to the other side, only to come face to face with a ravenous mountain lion. The moral of the story for investors is clear. Risk exists because more things can happen than do happen, and that encompasses far more than you might ever have imagined, let alone quantified and analysed.

You are not likely to come across too many hungry killers at your local racecourse, of course, at least not of the traditional variety, but the principle remains, and it is why you should always be willing to accept the maximum possible downside, regardless of how improbable it might appear.

Fortunately, conventional betting does offer a limited downside, i.e. the stake money. If your sure thing comes unstuck, even at that very generous 1 to 10, at least you won't be asked for a further advance on what you've already staked. Not so with spread betting, where the potential for disaster can be potentially hazardous to your wealth, if not your health.

Conventional wisdom dictates that in spread markets the best policy for the cautious is to buy rather than to sell. In many cases, this is true. In the market for bookings, for example, the line might be set at 42 – 46. If you buy at 46, the maximum loss you face is 46 times your stakes, and that will happen if there are no cards issued at all. If, on the other hand, you sell at 42, the potential loss could be catastrophic. Picture the scene: ten minutes left, and you are sitting pretty without so much as a caution in sight. Then a fight breaks out, and suddenly red cards are flashing everywhere. Truly a case of the agony outweighing any previous ecstasy. Be careful of generalisations, however, for in certain markets the buy may carry a quite unforeseen risk .

A classic case in point is the traditional mini-performance markets. One method of scoring these is to award 15 points for a win, 10 for a goal, 5 for a draw, and 5 for a clean sheet. At 32 – 36, you might think that a buy could in the worst scenario 'only' damage you to the tune of 36 times your stake, while just consider the upside in that dream eight-goal walkover. In the small print lies the 'lion', however, and that is the deduction of 15 points per red card. All of a sudden that 'maximum' downside is not such a maximum after all!

If you must know your total potential liabilities in advance, one way is to stick to buying goals. You know for sure that they can't fall below zero. You might even sell or buy minutes to the first goal. This might be one of the more unpredictable markets, but at least you know that no team can score in less than no minutes, or after 90 minutes (stoppage time is ignored for betting purposes).

Alternatively, you can enter the markets that offer a maximum stop-loss. This acts as a kind of insurance policy to limit your losses on any one event, such as a trade on the total lengths by which one horse beats another. This can be quite a comfort when your horse trips over its own feet coming out of the starting stalls. You can also agree a stop-loss in advance in certain defined circumstances .

Another option is to turn to the fixed-odds equivalent of spread markets. So instead of buying corners at 15, you could place a fixed-odds bet on there being more than 15 corners at, say, 8 to 1. Instead of buying bookings, you could place a fixed-odds bet on more than eight yellow cards being issued at, say, 12 to 1. This approach certainly limits your risk, but the in-built margins associated with these speciality markets are somewhat off-putting, not to say destructive of value.

In the end, then, there really is no such thing as risk unless it is coupled with a consequence, and that can be different for different people. Even so, you might do worse than always to bear in mind the famous 'law' that states that whatever can go wrong will go wrong. It might one day keep the shirt on your back, and that's for starters.

Chapter 6: Quarb Strategy: Using The Odds To Beat The Odds

The date is Sunday, 24 March 2002. Liverpool are playing Chelsea. The four major spread betting companies are offering a variety of odds about the likely number of bookings in the match. IG Index are offering a quote of 46 – 50. One way of looking at this is that they expect there to be a little under five yellow cards, statistically speaking, which would produce a make-up of 48 bookings points. This is the mid-point of their quote, and their margin lies in the size of the spread around this point. Cantor again set a quote of 46 – 50, as do Spreadex. Of course, the actual outcome cannot be 48 exactly, since yellow cards pick up ten points, and red 25. Instead, the 48 is a statistical estimate of the expected value. Essentially, these market-makers are estimating that there will be about four or five cautions, but that it is rather more likely to be five than four. Sporting Index are a little out of line, offering a quote of 50 – 54. They are acting, therefore, as what I call the 'maverick' bookmaker.

Now let's say that you know no more about the likely number of bookings in this match than you do about the finer points of Einstein's General Theory of Relativity (any theoretical physicists reading this excepted). Can you still make a meaningful trade in this market? The answer is yes, so long as you use the odds against themselves. The method works like this. Take the mid-point of each quote in turn, and average them. So for IG the mid-point is 48 (half way between 46 and 50). Now do the same for Cantor and Spreadex, and on each occasion you again get 48. For Sporting, however, the mid-point is 52. Add these up and you get a total of 196 (48 plus 48 plus 48 plus 52). Now divide by four, and you arrive at the average expected bookings make-up based on the quotes of all the market-makers. In this case, the answer is 49 (196 divided by four). This is what I call the *golden number*. The beauty of this approach is that you have used the combined wisdom and experience of four professional market-makers to calculate the most likely outcome of this event.

The question is whether this can be turned to your advantage in

a practical sense. The answer is yes, in certain circumstances. The circumstances are where one of the quotes falls everywhere outside the golden number. In this example, it is 49 and Sporting Index's quote of 50 – 54 lies everywhere outside it. All the other quotes include the golden number. If we assume that the market-makers, taken as a whole, are on average correct, then a sell of bookings points at 50 with Sporting Index should yield an expected profit of 1 point. This is what I call a *Quarb*, and it relies on the assumption that the market as a whole generates a better forecast of the bookings market than the outlying market-maker. If so, you can make a long-term profit while knowing next to nothing about the teams' disciplinary records, or that of the referee.

Does Quarb trading really work? In theory, finding the answer sounds as easy as collecting the data and testing. In reality, there are a number of problems to resolve. For example, what happens when there is an outright arbitrage position, i.e. where one of the quotes lies totally outside that of another? An example would occur if Sporting Index quoted 2.7 – 3.0, but IG Index, say, offered 2.3 – 2.6. Clearly here you could buy at 2.6 (with IG) and sell at 2.7 (with Sporting) and win whatever the result. Should such circumstances be defined as Quarb positions also? If so, might this not skew the results, particularly if it is not possible in practice to trade at these prices? On the other hand, is it justifiable simply to ignore them?

Again, what happens if the top end of one quote is short of the average mid-point by exactly the same amount as the bottom end of another quote is above it? Which, if either, do you choose as the 'maverick' position?

And even if you resolve these issues, on what basis do you decide that any profits made in retrospect from trading according to such a strategy are more significant than chance?

In a paper I presented, with my colleague David Paton, at the 2002 Royal Economic Society conference at the University of Warwick, a start was made in tackling these issues on the basis of a significant sample of matches.

To be precise, spreads for the bookings market were collected for up to five companies that existed during the period of the investigation. The opening prices are usually announced one or two days before each game, and were collected throughout the two

seasons. Data were collected about 207 matches for the 1999/2000 season and 240 matches for the 2000/2001 season.

In the 1999/2000 season, the Quarb strategy suggested 60 trades. On the basis of £1 being placed on each Quarb trade, a bettor would have won £973 on 36 winning bets and lost £384 on 22 losing bets, a net profit of £589 over the season. The remaining two bets yielded a return of zero.

The 2000/2001 season, 80 trades were suggested by the Quarb strategy. The average return to these bets was lower than in 1999/2000 but would still have yielded winnings of £836 on 50 winning bets and losses of £450 on 28 losing bets, a net profit of £386.

The conclusion of the study was that the mid-point of all the quotes on offer is a better forecast of the actual outcome in the bookings market than is the mid-point of the spread offered by the market outlier (the 'maverick'). This casts doubt on a hypothesis that market-makers who set quotes out of line with the prevailing view do so because they possess better (even privileged) information, or that they are able to process a given set of information more effectively than the market as a whole.

Moreover, using the notion of quasi-arbitrages or Quarbs, it was possible to devise a trading strategy on the basis of the outlying spread that yielded significantly positive profits.

Chapter 7: Tomorrow's Another Day

It is said that on returning from a day at the races, a certain Lord Falmouth, of yesteryear, was asked by a friend how he had fared. 'I'm quits on the day,' came the triumphant reply. 'You mean by that,' asked the friend, 'that you are glad when you are quits?' When his Lordship replied that indeed he was, his companion suggested that there was a far easier way of breaking even, and without the trouble or annoyance. 'By not betting at all!'

The noble Lord said that he had never looked at it like that before and, according to legend, gave up betting from that very moment.

We all know the feeling, but it doesn't help us at all when that bet we were so sure about, and so nearly placed, goes in at 20 to 1. If only! Of course, you have not actually lost any money; you are no worse off than before. Still, that doesn't stop you kicking yourself over the £200 or so that you would have won.

This is an example of what economists call 'regret theory' in action. According to the theory, what motivates us is not just what we have, but also what we might have had if only we had behaved differently. The theory might even explain in part why bettors at the racetrack tend to bet too much on longshots. Just look at how much you might have won!

Apply this logic now to the case of a football bet in running. Before the game started, you really were going to buy goals in that scrap. After all, with two of the leakiest defences in the League playing each other, there must be goals, and lots of them. You pick up the 'phone, get out the first syllable – and then remember that bill which needs paying. You replace the receiver.

After five minutes, an ill-judged tackle inside the penalty area later, and it's 1 – 0, with all of 85 minutes to play – all of 85 minutes to regret that moment of indecision, all of 85 minutes to watch the goals pile up. You'd better pick up the blower and buy before there's a second. Hold on a moment, though, the quote has gone up a whole goal, so you are effectively back to where you started. If you buy now, there could be three goals, and you're still in loss.

This is where regret theory gets complex, which is why now is the time to apply the cold rules of that old fallback, statistics and

probability theory. Conventional theory suggests that the number of goals in a football match shoud be distributed, on the average, in a timeless fashion, called a *Poisson distribution*. This allows us to calculate how soon, on the average, the first or second goal of a match will be scored if we have a good estimate of the number of goals that will be scored. It also allows us to estimate how much sooner one team will score, given the estimated superiority of one team over another.

There is also evidence that goals are somewhat clustered together. In other words, goals beget goals. If one goal is scored, it is just that little bit more likely that another is just around the corner. Talking of corners, there is evidence that the same pattern applies to these as well. Just like waiting for a bus, there may be nothing for a while and then two or three all at once.

Apply this cold logic now to your quandary as you sit, telephone in hand, cursing your luck for not buying goals earlier. The reality is that the early goal has made another strike just that bit more likely, and unless the quote goes up by more than a goal, the margin is in the buy. In practice, however, the margin is usually swallowed up somewhere between the two ends of the quote.

The moral of the tale is in what it suggests you should not do. You should not, at least on the whole, sell goals just after a goal, at least not just because there has been a goal. Unlike lightning, strikers do strike twice, and the evidence is the same even if that fifth minute goal turns out on this occasion to be the only one in the game.

Of course, you may live to regret your decision, but given the choice between potential regret and actual probabilities, it is with the laws of probability that I for one side would always side.

Chapter 8: Betting On The Election Spreads

It was once said that only three people ever understood that nineteenth-century conundrum of European diplomacy, the 'Schleswig-Holstein question'. Of these, one was dead, another had gone mad, and the third had forgotten. Much the same has been claimed of aspects of quantum physics. What we do know of this area of human enquiry, however, can tell us much about the ways of betting markets.

In particular, one interpretation of quantum theory is that nothing actually exists for sure, only with a higher or lower degree of probability. In the quantum world this probability may be so high, however, that it is in fact a sure thing for all practical purposes.

What unites quantum theory with conventional probability analysis is that every event is subject to random disturbances. Sometimes these are predictable and even out over time, based on their relative frequency. The chance of a coin turning up heads, or a die showing a six, are clear examples. The odds are readily calculable, and it is possible on this basis to determine quite easily whether the edge is in your favour or not.

Where probability analysis differs from quantum theory, in one sense at least, is when the outcome is already determined, but we don't yet know what it is.

It is said that that the eccentric racehorse owner of yesteryear, Dorothy Paget, had an arrangement with her bookmaker to bet 'after time' this way. Apparently, she was asleep during the time of racing, and liked to wager on the day's events immediately after waking.

More conventionally, we are talking about the type of bet where the outcome is known to a very select band, and which can be particularly profitable if you are one of this band. As a market-maker, you may be willing to lose some money to these insiders, in order to formulate a general market which can attract much more money than this from those who are not 'in the know'.

It is movements in the odds in such 'already determined' markets which are worth following particularly carefully. There are

handsome dividends to be earned from identifying these markets, and I am not just referring to recent match-fixing allegations.

Election time is one such opportunity. The reason for the value at election time derives from the plethora of polling, private and public, which is taking place. Much of this unfolding evidence is available to those close to the survey well before it is made public. Movements in the spreads with no obvious source can often be traced to this, and particularly so in the closing stages of an election campaign. It is why the markets used to shut well before close of polling.

Bookmakers are rather bolder these days, and sophisticated bettors alert to odds movements can benefit greatly. The key lies in an alertness of all public information, while keeping a close eye on market movements. Any shift with no obvious reason is the one to look out for, for it is quite likely to presage as yet unpublished new information. Significant movements in these essentially predetermined positions are just that – significant, in what they tell us about the thinking of those who are either in the know, or at the very least close to 'the know'.

As long as this new information is not fully incorporated into the new odds, now is the time to act. The opportunity exists because most markets take time to adjust to new information, what economists call taking time to establish a new equilibrium. In betting terms, this roughly translates to a variation of 'the early bird catches the worm'. In the right circumstances, that particular kind of worm can be very tasty indeed. Catch it while you can.

Chapter 9: Control The Consequences

There really is no such thing as risk without consequence, and the key to successful long-term betting is to keep the consequences very much under control. Let me explain.

In traditional fixed-odds betting, there is a great deal of evidence to suggest that punters are what economists call 'risk-loving.' Basically, this means that they are willing, consciously or otherwise, to sacrifice some expected return for taking on a little more risk. Most famously, this occurs when bettors at the racetrack pile on the big prices. What is a little strange about this phenomenon is that longshots not only pay out worse on average than shorter-priced animals, but bettors are also taking on a more risky proposition in backing them. After all, they win less often, and so any return you may obtain is likely to occur less frequently. Statisticians say that the punters are taking on higher 'variance' (risk) for a lower 'mean' (average) expected return. In other words, these bettors are either risk-loving, or at least they are behaving as if they are.

Spread bettors are a breed apart, however, to judge by their behaviour in their own chosen betting forum. Unlike traditional punters, they behave more like financial investors, who are generally acknowledged to be 'risk-averse', i.e. they will require a higher expected return to compensate for any extra risk. The clearest evidence of this can be found in the quotes offered about the time of the first goal in any football match. In a standard match, with an expected goal tally of, say, 2.6 goals, one would expect that the first goal would be scored in about the 36th minute. The problem with this market for risk-averse traders is that the downside to a sell of the first goal time is quite sizeable, i.e. 54 (90 minus 36) times the stake. This is also a very volatile market, where the actual outcomes are spread widely around the quoted position. In this sense, therefore, a trade in this market, and particularly a sell, is extremely risky. As a result, at the 'correct' quote, buy trades are likely to outweigh sell trades. If this hypothesis is correct, we would expect to see the mid-point of the quotes on offer about the time of the first

goal in a match set on average a little above the level determined by objective calculation. And we do!

The same applies, in spades, in the quotes on offer about the time of the first goal in any match in a tournament (in seconds). Just imagine a sell of seconds at, say, 110 seconds (the standard quote at the opening of World Cup 2002), for a fiver a second. What if the first goal in any tournament match is not scored until the 360th second? It sounds a perfectly reasonable scenario, but that means a loss of (360 minus 110) times 5, or £1250. The maximum gain is, of course, just 109 times your stake, even if a goal is scored in the first second.

Because of this, most bettors in this market tend to err on the side of caution and buy, which means that the quote is usually rather higher than it should be.

The World Cup was in fact a classic example, where clued-up sellers needed a nerve of steel to pick up the jackpot when Turkey scored in the 10th second against South Korea, in the penultimate game of the tournament. Until then, a stiff loss beckoned. Fancy selling seconds to the first goal next time?

A sell of runs in a cricket match is another obvious example. An extra ingredient here is the 'fun factor', though it only applies in particular circumstances. To illustrate, there is surely an extra touch of spice in a buy of runs in a cricket match compared to a buy of minutes to the first goal in a football match. After all, while the first is consistent with action and flair, the second is associated with recoiling every time the ball is played anywhere near the strike zone.

All in all, though, a sober-minded risk-averse trader will simply seek to avoid the twin devils of significant liabilities and significant volatility. Adding together these two factors suggests that the average trade will be skewed a little too heavily towards the buy side of the market as compared with an objective assessment of the probabilities. This means that the quote will tend to be slightly higher than it should be. This should occur in any event where the upside to a buy trade is greater than the potential downside.

This is not to say that the path to long-term prosperity is through a simple sell strategy in these markets, for while the quote may be a little too high it may not be lifted sufficiently to cover the size of the spread.

The key to a successful betting strategy is to take account of all relevant factors. For a football match, for example, identify cases where you genuinely think that the first goal will be scored more quickly than implied in the quote, or where you expect the number of runs in that innings to be on the low side. With intuition working in concert with analysis, now is the time to act.

But what about the risk? Well, risk as I stated earlier is nothing without consequence, and the smaller the stake, the smaller the consequence. Controlled losses, and odds in your favour, really do together add up to time on your side. And money too!

Part Five: Beating The Exchanges

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Chapter 1: Backing And Laying On The Exchanges

Betfair operates by allowing clients to either back or lay a bet. In order to open an account as a client, a deposit must be made. Credit card deposits carry a 1.5% charge, but there is no charge for UK debit card deposits or withdrawals to any card. Deposits and withdrawals can also be made by cheque and bank transfer, though there is a charge for bank transfer withdrawals.

When you bet on an event in the conventional sense, this is termed *backing* the event. If you wish to act as a bookmaker and offer odds about an event happening this is known as *laying* the bet.

Betfair provide the best three offers on each side of the equation. Thus the best three odds at which you can back an event are displayed on the left-hand side of the screen, together with the amounts that you can bet at those odds. On the right-hand side of the screen are the best three odds at which you can lay an event.

Betdaq, GGBet and Sporting Options also operate by allowing clients to either back or lay a bet. In the case of GGBet, however, the terminology is different. If you wish to back an event happening (i.e. to bet on something in the conventional sense) their term is that you *take the odds*.

Betfair, Betdaq and GGBet all provide the best three offers on each side of the equation. Thus the best three odds at which you can take the odds (back) are displayed on the left-hand side of the screen, together with the amounts that you can bet at those odds. On the right-hand side of the screen are the best three odds at which you can lay a bet. In addition to odds betting Betfair also offer line betting and range betting. Let's consider each of the three types of betting in turn.

Chapter 2: Odds Betting

Introduction

With odds betting the bettor predicts whether an outcome will occur or not, and places a bet on that outcome at given odds. In conventional betting markets, bettors place their bet at odds set by bookmakers, i.e. bettors take odds and bookmakers make (or offer) odds.

Betting exchanges permit clients to both take and to offer odds. In this way, you can bet both for and against an outcome occurring. When you take odds you back the outcome and when you offer odds you lay the outcome.

Clearly, if you back an outcome at given odds, you will gain if that outcome occurs. Say, for example, you back England to beat Australia at cricket at odds of 3 to 1, for a stake of £10. This means that you make a profit of £30 if England win (3 times your £10 stake), plus your £10 stake returned. Your loss if England do not win is limited to your stake, i.e. £10.

Laying an outcome, as explained earlier, is the exact opposite of backing it. Essentially, it is betting that the outcome will not occur. This is what bookmakers traditionally do. For example, if you lay Aston Villa at odds of 4.0 for £100, you think it is sufficiently unlikely that Villa will win that you are willing to offer the equivalent of traditional odds of 3 to 1 against it. Your total return, if Aston Villa lose or draw, is £100 (i.e. the stake), and your maximum loss is £300. In effect you are accepting the bets of other clients who believe that 3 to 1 is worth taking about Villa's chances of winning.

What Are Digital Odds?

Digital odds differ from the traditional fractional odds in that they include the stake. For example, if you place a bet of £100 at digital odds of 5.0, then the return to a winning bet is £500 (which includes the £100 stake). The fractional odds equivalent is 4 to 1.

What If The Odds You Want Aren't Available?

If you want to back an event happening at better odds than are

currently available, you are able to place an order for a better price. In doing so, you are hoping that somebody will see your offer and be willing to lay you the bet, partially or in total, at the odds you request.

Your offer to back appears on the right-hand side as a request for someone to lay you a bet, at the odds requested and up to the amount requested.

Example

For a few minutes after opening on Sunday 26 May 2002, it was possible to obtain 7 to 1 in a string of betting offices, about Quarter Moon winning the Irish 1000 Guineas. Your stake size would have been restricted, but say you placed £100 at that 7 to 1:

Returning to your computer screen you would have noted the following Betfair odds, available at about 12.30 pm that day:

Available to back: At 6.4 (£382); At 6.6 (£67); At 6.8 (£25)
Available to lay: At 7.0 (£873); At 7.4 (£145); At 7.6 (£132)

You could now lay Quarter Moon at 7.0 (or 6 to 1) for £100.

If Quarter Moon wins, your profit at the betting office is £700, but you only pay out £600 to your betting exchange colleagues.

If Quarter Moon loses, you lose £100 at the betting office, but you win £100 (minus commission) in the betting exchange. In other words, you stand to win a net profit of £100, for the maximum downside of 5% of £100, i.e. £5.

By laying the horse at 6 to 1 for £110, say, you would make a profit of £90 if Quarter Moon wins, but make a small profit, even net of commission, if it loses.

Now let us see how exactly you would go about laying the horse at 6 to 1 on Betfair. First, you select *Today's Horse Racing* from the vertical list of sports/special bets available on the left side of the screen.

You then select *4.00 Curragh* from the list of options presented, and you are led to a list of the best three prices at which it is possible to back and lay the horse, together with the amounts at which you can back or lay at these odds (see above).

As noted in the example, it was possible to lay Quarter Moon at

7.0 up to a total of £873. Note that this means that you are offering odds of 7.0 (6 to 1) to other clients of the exchange who wish to back the horse at that price. If you agree to accommodate all this money, your net liability is, therefore, more than £5000. To be precise, it is 6 × £873, or £5238, which means that you would need to have that amount of money deposited in your account, over and above any outstanding potential liabilities on other events you may already have laid.

Let us say that you decide to lay Quarter Moon at 7.0 for £100. To do this you select the *LAY* button, and click on it.

If you wish to lay at 7.0 for £100, simply enter £100 at this point.

You are immediately warned of the implications of what you are intending to do, i.e. that you stand to win £100 (minus commission) if the horse does *not* win, but to lose a net amount of £600 if the horse *does* win.

Press *Enter* again to confirm.

An alternative approach is to offer to lay the horse at less than 7.0, say at 6.8 when the display prompts you with the possibility of choosing your own odds. You now select 6.8 for £100, say, and press *Enter*. The implications of your proposed offer are again displayed before you finally confirm.

If Quarter Moon does not win, you keep your stake of £100. In total your gross profit is £100 (minus commission). If Quarter Moon wins, your gross payout is £680. This includes your stake of £100. In total, your loss is £580.

If you confirm, an extra £100 is added to the *BACK* side of the screen, which means that those wishing to back the horse at 6.8 (i.e. 5.8 to 1) will have the opportunity of staking £100 with you, in addition to however much is being offered by other members of the exchange at those odds.

In the example above, £25 was available at 6.8. With your offer, £125 is now available. Of course, this is only an offer, and there is no guarantee that anyone will be willing to take your offer at those odds. In the meantime, you may have missed the opportunity to LAY the horse, for a sure profit, at 7.0 when people were willing to back it at that price.

When Should You Back Or Lay?

This depends on the type of bettor you are. If you are totally averse to taking any risk, you will only lay when you can do so at a shorter price than you have taken. In other words, you will only lay at 6 to 1 if you have previously obtained longer odds than 6 to 1, or are certain to obtain longer than 6 to 1 at some future time.

If you are willing to gamble, however, you might do worse than take a look at the following strategy:

1. Identify cases where the back and lay prices are quite close to each other. This way, the price you are getting will be quite close to what the market expects. For example, if you can back a horse at 6.8, or lay it at 7.0, whichever you do will probably be close to the true probability. Moreover, there is a reasonable chance that the market will move enough to allow you to back and lay for a sure profit. After all, it doesn't have to move far.

2. Take a look at the relative amounts of money on both sides of the screen. In the example just given, £25 was available to back Quarter Moon at 6.8, but all of £873 to lay it at 7.0. This means that clients were willing to stake up to £873 if you were willing to offer them odds of 7.0 (6 to 1). That's a sign of confidence in the horse at that price, just as a queue at the cake stall is a sign of confidence in the cakes. On the other hand, a paltry £25 to back at 6.8 means that clients are only willing to let you back the horse at that price for £25. Sounds like the market is not too confident in letting backers take that price.

If you know nothing else, in these circumstances a punt at the 6.8 looks the better option. At those odds, we are still only saying that the horse has about a 1 in 7 chance of actually winning the race, but you might be on the right side of taking the value.

For the record, Quarter Moon, trained by Aidan O'Brien and ridden by Mick Kinane, came second.

Chapter 3: Line And Range Betting

In addition to standard exchange betting, Betfair also offer *line* and *range* betting on certain events.

What Is Line Betting?

Line betting is an even-money bet on some numerical event, such as the number of runs in a cricket match, corners in a soccer match, minutes to the first goal, and so forth. The line in question is a line of numbers representing all possible results.

A bet is undertaken by a decision to either *buy* or *sell* the line, as it is termed, at a given price. A buy of the line is rewarded if the outcome is above (greater than) the line, and a sell of the line is rewarded if the outcome is below (less than) the line.

For example if the line on England first innings runs in the first Test of the Ashes series is set at 220, then a buy of the line would be a winning bet (at evens, i.e. 2.0) if England score more than 220 runs. Thus, a buy of the line at 220 for, say, £50 would return a net profit of £50 on the bet. If England scored less than 220 runs, on the other hand, you would lose your £50.

Similarly, if you sell the line at 220 runs, and England score fewer than 220 runs, you win a net profit equal to your stake. If you sell at 220 and England score more than 220 runs, however, you lose your stake money.

If England score exactly 220 runs, the bet is void, and you win and lose nothing.

The advantage of line betting over conventional spread betting is that your losses are capped at the stake. The disadvantage is that your profits are capped as well.

The line is not always set at a whole number. For example, England runs might have been set at 219.75. The way to look at this is to see it as two bets, one at 219.5 and the other at 220. If your stake is, say, £200, this can therefore be viewed as two bets of £100 each. If you buy the line in this way at 219.75, and England score 220, one half of the bet is a winner (the £100 buy at 219.5) and the other half is void (the £100 At 220). In other words, your net profit for a £200 stake is £100.

What Is Range Betting?

Range betting is effectively betting on some numerical event, such as the number of runs in a cricket match, corners in a soccer match, minutes to the first goal, and so forth, around a predetermined 'points index'. The effect of range betting is that the bettor earns a profit or incurs a loss equal to the difference between the level (or price) at which the bet is placed and the eventual outcome, multiplied by the unit stake, as specified by the bettor. The 'stake' is defined as the amount bet per unit, e.g. per run or per point.

In range betting, a bet is undertaken by a decision to either buy or sell at a given level, or price. A buy is rewarded if the outcome is above (greater than) the level at which the buy is implemented, in proportion to the amount by which it is greater. A sell is rewarded if the outcome is below the level at which the sell is implemented, in proportion to the amount by which it is less.

For example, if you buy England runs at 220, for £10 per run, then you win £10 for every run by which England exceed this total. On the other hand, if England score fewer than 220 runs, you lose £10 for every run by which the total falls short.

The price need not be a whole number. For example, the price offered about the total number of goals scored in a soccer match typically lies between 2 and 3, say 2.6. Assume that you buy total goals at 2.6, then whatever happens you must either win or lose. It is not possible to break even, for the simple reason that there cannot be exactly 2.6 goals in practice. For example, if you buy total goals at 2.6 for £50 per goal, then you will win if there are three goals or more, and lose if there are two goals or less. If there are four goals, for example, then you would win £70, i.e. £50 × (4 - 2.6). If only one goal was scored, however, you would lose £80, i.e. £50 × (2.6 - 1).

Unlike in spread betting markets, Betfair impose a minimum and maximum limit on range bets. In a range bet for corners, for example, the range is between 7 and 17 corners.

Cancelling A Bet

Any offer (whether to back or lay) that has not been *matched* can be cancelled. It is not possible however, to cancel a bet once it has been matched, i.e. the offer has been accepted by another client.

Chapter 4: Asian Handicap Betting On The Exchanges

Asian handicap betting in a betting exchange environment operates in the same way as odds betting, except that an artificial handicap is given to one of the teams to bring the odds about each side winning closer to each other than would otherwise be the case.

Asian handicap betting has been explained in Chapter 1 of Part 1 but an example from a real match on Betfair is used here to explain exactly how it works within an exchange environment.

England v. Sweden (World Cup, 2002)
2 June, 2002 – 10 am (kick-off 10.30 am)

	Available to back			Available to lay		
England - 0.5 & - 1.0	–	–	–	3 (£75)	–	–
Sweden + 0.5 & 1.0	–	–	–	1.76 (£50)	–	
England - 0.5	2.14 (£250)	2.16 (£483)	2.18 (£1000)	2.24 (£800)	2.26 (£10)	2.5 (£20)
Sweden + 0.5	1.64 (£20)	1.76 (£62)	1.8 (£700)	1.86 (£50)	1.88 (£350)	1.94 (£685)
England 0 & - 0.5	1.8 (£250)	1.82 (£760)	1.84 (£112)	1.9 (£274)	1.92 (£205)	1.94 (£113)
Sweden 0 & + 0.5			2.1 (£290)	2.38 (£200)	2.4 (£550)	2.5 (£50)
England 0	1.5 (£25)	1.52 (£42)	1.58 (£100)	1.8 (£20)	1.84 (£50)	2 (£2)
Sweden 0			2.26 (£20)	2.96 (£55)	2.98 (£102)	3.32 (£20)

Here we see that England are favourites, at scratch handicap (available to back at 1.58 compared to 2.26), but that Sweden are favourites given a half goal start (available to back at 1.8).

Backing England At Scratch

Let's say you did back England at scratch handicap (no handicap); let's see what would have happened.

Say you staked £10 at 1.58. If England won, you would earn a profit (ignoring commission) of £5.80. If Sweden won, you would lose your £10 stake. In the event, the match ended as a draw, and so you would have won and lost nothing. Your stake is returned.

Backing England With A Half Goal Deficit

Let's say you backed England at - 0.5 (a half goal handicap deficit); let's see what would have happened.

Say you staked £10 at 2.18. If England won, you would earn a profit (ignoring commission) of £11.80. The actual 1 – 1 draw meant that England lost by half a goal (their handicap), and so you lose your stake.

Similarly, a bet at 1.8 about Sweden (given a half goal start) means that a draw becomes a winning bet, of an additional £8 to add to your £10 stake (minus commission).

To summarise:

England - 0.5 v. Sweden + 0.5

Back England: You win if England win. You lose if England draw, or Sweden win the match.

Lay England: You win if the match is a draw, or Sweden win. You lose if England win.

Back Sweden: You win if the match is a draw, or Sweden win. You lose if England win.

Lay Sweden: You win if England win. You lose if the match is a draw, or Sweden win the match.

England 0 v. Sweden 0

Back England: You win if England win. If the match is a draw, your stake is returned. You lose if Sweden win.

Lay England: You win if Sweden win. If the match is a draw, your stake is returned. You lose if England win.

Back Sweden: You win if Sweden win. If the match is a draw,

your stake is returned. You lose if England win.

Lay Sweden: You win if England win. If the match is a draw, your stake is returned. You lose if Sweden win.

The same principles apply regardless of the size of the handicap. Take, for example, the game between Brazil and China, played on Sunday, 8 June. Here the Asian handicap lines stretched to 2 goals, and it is one of the more complex possibilities. If you can master this, you can master any of the possibilities. Here it is, with a summary of the outcomes given all possible eventualities:

Brazil - 1.5 & - 2.0 China + 1.5 & + 2.0

Back Brazil: You win if Brazil win by three or more goals. If Brazil win by two goals, you win half your bet. You lose if China win, the match is a draw, or Brazil win by one goal.

Lay Brazil: You win if China win, the match is a draw or Brazil win by one goal. If Brazil win by two goals, you lose half your bet. You lose if Brazil win the match by three or more goals.

Back China: You win if China win, the match is a draw or Brazil win by one goal. If Brazil win by two goals, you lose half your bet. You lose if Brazil win by three or more goals.

Lay China: You win if Brazil win by three or more goals. If Brazil win by two goals, you win half your bet. You lose if China win, the match is a draw or Brazil win by one goal.

Part Six: World Cup Fever

BOOK PREVIEW
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Chapter 1: Different Betting Strategies

In the last chapter, we looked at Asian handicap betting on the exchanges, using England's opening match against Sweden as an illustration of how it works.

In this final part of the book, I will use the same match to highlight some of the different ways in which a betting strategy can be implemented.

Fixed Odds

We begin on the Saturday evening preceding England's opener. The average punter would go to his local bookie and perhaps take the odds on offer about one or other outcomes. The reality is that the choices on offer were simply wondrous.

Take the fixed odds first, and consider the case of the typical Ladbrokes punter (I choose Ladbrokes simply as an example of one of the big established chains). The odds about the three basic outcomes were as follows (decimal odds in brackets):

England to win: Evens (2.0)
Sweden to win: 12 to 5 (3.4)
Draw: 2 to 1 (3.0)
Evens is the equivalent of a 50% chance (100/2.0)
12 to 5 is the equivalent of a 29.4% chance (100/3.4)
2 to 1 is the equivalent of a 33.3% chance (100/3.0)

This adds up to a total implied chance for the three possible outcomes of 112.7%. This is known as the 'over-round'. If the odds reflected the true chances they would add up, of course, to 100%. In other words, the odds were stacked in favour of Ladbrokes by 12.7%.

The more sophisticated bettor has only to look around to the main competitors in the market. A convenient step along this route is a click to the Oddschecker site, and thereby to the odds available with 18 other mainstream bookmakers. This revealed the following best prices:

England to win: 5 to 4 (2.25) – with Paddy Power, Netbetsports
Sweden to win: 14 to 5 (3.8) – with Totalbet, Littlewoods
Draw: 11 to 5 (3.2) – with Littlewoods
5 to 4 is the equivalent of a 44.4% chance (100/2.25)
14 to 5 is the equivalent of a 26.3% chance (100/3.8)
11 to 5 is the equivalent of a 31.3% chance (100/3.2)

This adds up to a total implied chance for the three possible outcomes of 102%. This is less than a sixth of the Ladbrokes in-built margin (2% instead of 12.7%).

If that is not enough, there is always the possibility of a foray into the Betbrain site, which lists odds of a much wider range of bookmakers from across the globe, some relatively unknown. This site revealed the following best prices (decimal odds only):

England to win: 2.3 – with Lion Bets
Sweden to win: 4.35 – with SportsTab
Draw: 3.35 – with SportsTab
2.3 is the equivalent of a 43.5% chance (100/2.3)
4.35 is the equivalent of a 23.0% chance (100/4.35)
3.35 is the equivalent of a 29.9% chance (100/3.35)

This adds up to a total implied chance for the three possible outcomes of 96.4%. This is what is known as an under-round book for the market, though not for any individual bookmaker. This means that the margin now favours the selective bettor, who could in principle win whatever the result by choosing stakes on each outcome at the set prices, in the correct proportions.

In practice, it often means taking on trust the reputations of some of the smaller bookmakers. The odds may also have altered from when you see them displayed on the odds comparison site to the point of actually implementing the bet. The stake size may also be limited.

Besides the traditional fixed odds outlets, the astute bettor may also consult the betting exchanges for alternative odds. Often these odds will be better, since the bookmaker is cut out of the equation, but in considering this option the bettor needs to take account of any commission charged by the exchange operator.

Let's look at what really was going on in the betting exchanges while the prices displayed above were being highlighted on the odds comparison sites.

First, to Betfair, which was showing the following:

	Available to back			Available to lay		
England	2.1	2.15	2.2	2.25	2.3	2.35
	(£9169)	(£3177)	(£974)	(£11657)	(£5356)	(£60)
Sweden	4.2	4.3	4.4	4.5	4.6	5.2
	(£1123)	(£558)	(£218)	(£546)	(£1000)	(£20)
Draw	2.9	3	3.1	3.2	3.3	3.4
	(£113)	(£1626)	(£3951)	(£5042)	(£2258)	(£500)

Calculating the over-round to back

2.2 is the equivalent of a 45.5% chance (100/2.2)
4.4 is the equivalent of a 22.7% chance (100/4.4)
3.1 is the equivalent of a 32.3% chance (100/3.1)
Over-round = 101.5% (ignoring commission)

Calculating the over-round to lay

2.25 is the equivalent of a 44.4% chance (100/2.25)
4.5 is the equivalent of a 22.2% chance (100/4.5)
3.2 is the equivalent of a 31.3% chance (100/3.2)
Over-round = 97.9% (ignoring commission)

From the backer's point of view, this 'over-round to back' should be as low as possible, and ideally below 100%.

From the layer's point of view, this 'over-round to lay' should be as great as possible, and ideally above 100%.

The odds available with Betdaq were as follows:

	Available to back			Available to lay		
England	2.0	2.10	2.15	2.20	2.25	2.30
	(£5010)	(£452)	(£261)	(£265)	(£400)	(£13)
Sweden	4.0	4.1	4.3	4.4	4.5	4.6
	(£167)	(£80)	(£109)	(£299)	(£350)	(£108)
Draw	2.9	3.0	3.1	3.25	3.3	3.4
	(£87)	(£1125)	(£145)	(£338)	(£368)	(£480)

BETTING TO WIN

Calculating the over-round to back

2.15 is the equivalent of a 46.5% chance (100/2.15)
4.3 is the equivalent of a 23.3% chance (100/4.3)
3.1 is the equivalent of a 32.3% chance (100/3.1)
Over-round = 102.1% (zero commission)

Calculating the over-round to lay

2.2 is the equivalent of a 45.5% chance (100/2.2)
4.4 is the equivalent of a 22.7% chance (100/4.4)
3.25 is the equivalent of a 30.8% chance (100/3.25)
Over-round = 99% (zero commission)

As with Betfair, it's only the price about a Sweden win that should tempt backers away from the traditional bookmakers.

The 4.3 was commission-free with Betdaq, compared to a commission of up to 5% with Betfair on the 4.4. Not a bad offer, albeit to limited stakes, and certainly to be weighed closely against the SportsTab offer.

Finally, to the betting exchange located at GGBET.com.

	Available to back			Available to lay		
England	2.1	2.11	2.2	2.25	2.25	2.30
	(£5010)	(£452)	(£261)	(£265)	(£400)	(£13)
Sweden	4.0	4.1	4.3	4.4	4.5	4.6
	(£167)	(£80)	(£109)	(£299)	(£350)	(£108)
Draw	2.9	3.0	3.1	3.2	3.3	3.4
	(£87)	(£1125)	(£145)	(£338)	(£368)	(£480)

Calculating the over-round to back

2.2 is the equivalent of a 45.5% chance (100/2.2)
4.3 is the equivalent of a 23.3% chance (100/4.3)
3.1 is the equivalent of a 32.3% chance (100/3.1)
Over-round = 101.1% (ignoring commission)

Calculating the over-round to lay

2.25 is the equivalent of a 44.4% chance (100/2.25)
4.4 is the equivalent of a 22.7% chance (100/4.4)
3.2 is the equivalent of a 31.3% chance (100/3.2)

Over-round = 98.4% (ignoring commission)

Those seeking to lay an England win, a Sweden win or a draw in the exchanges had the following best options to consider:

Lay England to win: At 2.25 with Betfair and/or GGBet, or at 2.2 with Betdaq (zero commission on winnings).
Lay Sweden to win: At 4.5 with Betfair, or at 4.4 with GGBet and/or Betdaq (zero commission on winnings with the latter).
Lay the draw: At 3.2 with Betfair and/or GGBet or at 3.25 with Betdaq (zero commission on winnings with the latter).

Let's see how this compares with what the professional layers (the bookmakers) were willing to offer.

Lay England to win: 2.25 (Paddy Power, Netbetsports); 2.3 (Lion Bets).
Exchange layers: 2.2 (Betdaq); 2.25 (Betfair, GGBet).
In the best scenario, you could lay England to a total liability of £265 with Betdaq at 2.2 (commission-free), and back them at 2.25 or 2.3 with the bookmakers (tax-free). Even if you don't want to hedge your bet this way, what the evidence shows is that you could have laid a bet on an England win at shorter odds than were available with some established bookmakers.

Lay Sweden to win: 3.8 (Totalbet, Littlewoods); 4.35 (Lion Bets).
Exchange layers: 4.4 (Betdaq, GGBet); 4.5 (Betfair).

Lay the draw: 3.2 (Littlewoods); 3.35 (SportsTab).
Exchange layers: 3.2 (Betfair, GGBet); 3.25 (Betdaq).

Just for the record, I compiled the odds again with just 15 minutes to kick-off.

Ladbrokes
England to win: Evens (2.0)
Sweden to win: 12 to 5 (3.4)
Draw: 2 to 1 (3.0)

Over-round = 112.7% (unchanged)

Oddschecker best prices

England to win: 5 to 4 (2.25) – with Paddy Power, Sports.com, Netbetsports.

Sweden to win: 3 to 1 (4.0) – with Littlewoods

Draw: 21 to 10 (3.1) – with Littlewoods

5 to 4 is the equivalent of a 44.4% chance. (100/2.25)

3 to 1 is the equivalent of a 25% chance (100/4.0)

21 to 10 is the equivalent of a 32.3% chance (100/3.1)

This adds up to a total implied chance for the three possible outcomes of 101.7%, down 0.3% from the previous evening.

What had happened was that the odds about a Sweden win at best bookmaker prices had lengthened a little, and the odds about a draw had shortened a little. The net impact was to reduce the margin against the bettor from 2% to 1.7%.

Betbrain

England to win: 2.3 – with Lion Bets

Sweden to win: 4.50 – with SportsTab

Draw: 3.25 – with SportsTab, SportingbetUSA

2.3 is the equivalent of a 43.5% chance (100/2.3)

4.50 is the equivalent of a 22.2% chance (100/4.50)

3.25 is the equivalent of a 30.8% chance (100/3.25)

This adds up to a total implied chance for the three possible outcomes of 96.5%, a tiny increase overnight.

On the Sunday morning, minutes before kick-off, the position on the exchanges was as follows:

Betfair

	Available to back			Available to lay		
England	2.1	2.15	2.2	2.25	2.3	2.35
	(£3447)	(£8426)	(£289)	(£7437)	(£2394)	(£850)
Sweden	4.1	4.2	4.3	4.4	4.5	4.6
	(£27	(£1122)	(£1117)	(£160)	(£766)	(£1300)
Draw	2.95	3	3.1	3.2	3.3	3.4
	(£33)	(£652)	(£952)	(£3306)	(£1065)	(£500)

Since the prices posted the evening before, the only change (apart from the stake availabilities) was that layers were slightly better off (it was now possible to lay Sweden at 4.4 compared to 4.5 the previous evening), but those seeking to back Sweden to win could only avail themselves of a price of 4.3 instead of the 4.4 previously available.

Betdaq

	Available to back			Available to lay		
England	2.10	2.15	2.20	2.25	2.30	2.35
	(£5452)	(£1842)	(£2432)	(£1072)	(£13)	(£202)
Sweden	3.8	4.0	4.1	4.4	4.5	4.6
	(£71)	(£167)	(£80)	(£231)	(£385)	(£108)
Draw	2.9	3.0	3.1	3.2	3.25	
	(£87)	(£1125)	(£230)	(£44)	(£338)	

Again, the odds to back Sweden to win had contracted since the previous evening, although the odds available about an England win had lengthened a little.

BETTING TO WIN

GGBet

	Available to back			Available to lay		
England	2.1	2.11	2.2	2.25	2.3	2.4
	(£200)	(£195)	(£27)	(£379)	(£100)	(£200)
Sweden	3.7	3.9	4.1	4.3	4.4	4.6
	(£310)	(£66)	(£74)	(£104)	(£89)	(£100)
Draw	2.9	3.0	3.1	3.3	3.4	3.5
	(£136)	(£31)	(£238)	(£101)	(£100)	(£123)

Once again, the odds to back Sweden to win have contracted since the previous evening, although the odds available about an England win were unchanged.

Taking all of these exchanges together, the situation with respect to backing and laying each of the options at best price, comparing the immediate pre-match prices with those available the previous evening, was as follows:

Back England: Unchanged (2.2)
Back Sweden: Better the previous evening (4.4 to 4.3)
Back the draw: Unchanged (3.1)
Lay England: Better the previous evening (2.2 to 2.25)
Lay Sweden: Better pre-match (4.3 to 4.4)
Lay the draw: Unchanged (3.2)

Calculating the over-round to back at best prices (ignoring commission), immediately pre-match, we find:

2.2 is the equivalent of a 45.5% chance (100/2.2)
4.3 is the equivalent of a 23.3% chance (100/4.3)
3.1 is the equivalent of a 32.3% chance (100/3.1)
Over-round = 101.1% (ignoring commission)

Calculating the over-round to lay at best prices (ignoring commission), immediately pre-match the position was:

2.25 is the equivalent of a 44.4% chance (100/2.25)
4.3 is the equivalent of a 23.3% chance (100/4.3)

3.2 is the equivalent of a 31.3% chance (100/3.2)
Over-round = 99%

Calculating the over-round to back at best prices (ignoring commission), the previous evening's position showed:

2.2 is the equivalent of a 45.5% chance (100/2.2)
4.4 is the equivalent of a 22.7% chance (100/4.4)
3.1 is the equivalent of a 32.3% chance (100/3.1)
Over-round = 100.5%

Calculating the over-round to lay at best prices (ignoring commission), the previous evening, we get:

2.2 is the equivalent of a 45.5% chance (100/2.2)
4.4 is the equivalent of a 22.7% chance (100/4.4)
3.2 is the equivalent of a 31.3% chance (100/3.2)
Over-round = 99.5% (ignoring commission)

In summary, ignoring stake availability, those seeking to back the big game on the exchanges were, on the whole, better off doing so the previous evening.

Those seeking to lay were better off doing so on the day, because of the slightly shorter price at which it was possible to lay Sweden.

Layers delay? That's what the evidence of this match indicates, at least.

Spread Betting

Immediately before the England v. Sweden game, Sporting Index, IG Index Sport, Cantor Sport, Spreadex and Sportsspread were offering the following quotes about the major markets:

England supremacy:

0.2 – 0.5 (Sporting)
0.3 – 0.6 (IG)
0.4 (Cantor) (i.e. zero spread special offer)
0.2 – 0.5 (Spreadex)
0.3 – 0.6 (Sportsspread)

BETTING TO WIN

Total Goals:
2.1 – 2.4 (Sporting)
2.2 – 2.5 (IG)
2.1 – 2.4 (Cantor)
2.1 – 2.4 (Spreadex)
2.4 – 2.7 (Sportsspread)

Shirt numbers:
26 – 29 (Sporting)
25 – 28 (IG)
24 – 27 (Cantor)
24 – 27 (Spreadex)
24 – 27 (Sportsspread)

Bookings:
36 – 40 (Sporting)
36 – 40 (IG)
34 – 38 (Cantor)
33 – 37 (Spreadex)
36 – 40 (Sportsspread)

Corners:
10.25 – 11.25 (Sporting)
10 – 11 (IG)
9.5 – 10.5 (Cantor)
9.5 – 10.5 (Spreadex)
10 – 11 (Sportsspread)

First match goal:
40 – 43 (Sporting)
41 – 44 (IG)
40 – 43 (Spreadex)
37 – 40 (Sportsspread)

First England goal:
52 – 55 (Sporting)
51 – 54 (IG)
51 – 54 (Spreadex)
48 – 51 (Sportsspread)

First Sweden goal:
60 – 63 (Sporting)
61 – 64 (IG)
58 – 61 (Spreadex)
56 – 59 (Sportsspread)

25 – 10 – 0 Index (England)
13.5 – 15 (Sporting)
14 – 15.5 (IG)
13 – 14.5 (Cantor)
13 – 14.5 (Spreadex)
13 – 14.5 (Sportsspread)

25 – 10 – 0 Index (Sweden)
8.5 – 10 (Sporting)
8.5 – 10 (IG)
9 – 10.5 (Cantor)
9 – 10.5 (Spreadex)
9.5 – 11 (Sportsspread)

N.B. The 25 – 10 – 0 index (also known as the Windex) works as follows:

25 points are awarded for a win
10 points are awarded for a draw
0 points are awarded for a loss

Let us examine each of these markets in turn, starting with the goal supremacy market.

The first thing to look for is whether there exist what I have termed 'Quarbs' (quasi-arbitrages). I divide Quarbs into two types: simple Quarbs and full Quarbs.

Simple Quarbs exist when the top end of one company's spread coincides with the bottom end of another company's spread. In the England v. Sweden game, no such situation existed in the supremacy market.

The second thing to look for is a full Quarb. This exists when one of the spreads lies wholly outside the average of the mid-points of all the spreads.

Applying this to the supremacy market produces the following:

England supremacy:

0.2 – 0.5 (Sporting)	MID-POINT = 0.35
0.3 – 0.6 (IG)	MID-POINT = 0.45
0.4 (Cantor)	MID-POINT = 0.4 (Cantor was offering a zero spread)
0.2 – 0.5 (Spreadex)	MID-POINT = 0.35
0.3 - 0.6 (Sportsspread)	MID-POINT = 0.45

Average of the mid-points =
$$(0.35 + 0.45 + 0.4 + 0.35 + 0.45)/5 = 2/5$$
$$= 0.4$$

0.4 lies within all the spreads, and is equal to the point spread offered by Cantor. There was, therefore, no possibility of implementing a trade based on Quarb strategy in this market.

The best option for those seeking to buy supremacy, however, was the 0.4 on offer with Cantor. Those seeking to sell again were best off by selling at 0.4 with Cantor.

In the event, the sell proved the profitable trade. Was this the value bet before the match, and without the benefit of hindsight? This depends on what were objectively the real chances of an England win, a Sweden win and a draw.

One way of estimating this is to take the best odds on offer with the betting exchanges, since the implied probabilities normally add up to about 100%, and reflects the combined wisdom of those willing to put their money where their mouth is. Let's look at these again.

Calculating the over-round to back at best prices on the exchanges (as above):

England win: 1.2 to 1

Sweden win: 3.4 to 1
Draw: 2.1 to 1
Over-round = 101.1%

Do odds of 1.2 to 1 about an England win translate into an England supremacy rating of less than 0.4 goals? Clearly England, as favourites, start with a positive goal supremacy rating, but whether value exists in SELL at 0.4 in these circumstances really is a close call.

Let us turn now to the total goals market.

Total goals:
2.1 – 2.4 (Sporting)
2.2 – 2.5 (IG)
2.1 – 2.4 (Cantor)
2.2 – 2.5 (Spreadex)
2.4 – 2.7 (Sportsspread)

Again, the first thing to look for is whether there exist what I have termed 'Quarbs' (quasi-arbitrages).

You may remember that simple Quarbs exist when the top end of one company's spread coincides with the bottom end of another company's spread. In the England v. Sweden game, this existed between Sporting and Cantor (2.1 – 2.4) and Sportsspread (2.4 – 2.7). This means that you could buy with one company and sell with another, and make a certain profit (loss) of zero.

This is indicative, at least, that one of the companies is a little out in its judgement, and it may be possible to take advantage. To see if this is the case, we need to determine whether a full Quarb exists. This exists when one of the spreads lies wholly outside the average of the mid-points of all the spreads.

Applying this analysis to the total goals market produces the following:

Total Goals
2.1 – 2.4 (Sporting)   MID-POINT = 2.25
2.2 – 2.5 (IG)   MID-POINT = 2.35
2.1 – 2.4 (Cantor)   MID-POINT = 2.25
2.2 – 2.5 (Spreadex)   MID-POINT = 2.35

2.4 – 2.7 (Sportsspread)   MID-POINT = 2.55

Average of the mid-points = (2.25 + 2.35 + 2.25 + 2.35 + 2.55)/5

$$= 11.75/5 = 2.35$$

Sportsspread's quote of 2.4 – 2.7 lies everywhere outside the average mid-point (2.35).

In other words, we are saying that the market-makers of the five companies have produced a combined best estimate that the expected number of goals in the match will be 2.35.

If this is truly the best estimate, then the value exists in a sell of total goals at 2.4 with Sportsspread. In the event, a sell at 2.4 did prove a profitable trade.

Turning now to the shirts market, which quotes an aggregate of the shirt numbers worn by players who score.

Shirt numbers:

26 – 29 (Sporting)

25 – 28 (IG)

24 – 27 (Cantor)

24 – 27 (Spreadex)

24 – 27 (Sportsspread)

The average of the mid-points is:

$$(27.5 + 26.5 + 25.5 + 25.5 + 25.5)/5 = 26.1$$

There is almost a full Quarb with Sporting, but not quite.

Bookings:

36 – 40 (Sporting)

36 – 40 (IG)

34 – 38 (Cantor)

33 – 37 (Spreadex)

36 – 40 (Sportsspread)

The average of the mid-points is: (38 + 38 + 36 + 35 + 38)/5 = 37

As near as it is possible to get to a full Quarb (courtesy of Spreadex), but not quite.

Corners:
10.25 – 11.25 (Sporting)
10 – 11 (IG)
9.5 – 10.5 (Cantor)
9.5 – 10.5 (Spreadex)
10 – 11 (Sportsspread)
The average of the mid-points is:

$$(10.75 + 10.5 + 10 + 10 + 10.5)/5 = 51.75/5$$
$$= 10.35$$

No Quarb.

Time to first match goal (minutes):
40 – 43 (Sporting)
41 – 44 (IG)
40 – 43 (Spreadex)
37 – 40 (Sportsspread)

There is clearly a simple Quarb here, in that the top end of the Sportsspread quote (40) coincides with the bottom end of the Sporting quote (40). This means that you could buy with Sportsspread and sell with Sporting, and make a certain profit (loss) of zero.

Again, this is indicative that one of the companies may be a little out in its judgement. To see if this is the case, we need to determine whether a full Quarb exists.

Applying this analysis to the first match goal market produces the following:

Time to first match goal
40 – 43 (Sporting)   MID-POINT = 41.5
41 – 44 (IG)   MID-POINT = 42.5
40 – 43 (Spreadex)   MID-POINT = 41.5
37 – 40 (Sportsspread)   MID-POINT = 38.5

Average of the mid-points = $(41.5 + 42.5 + 41.5 + 38.5)/4 = 41$

Sportsspread's quote of 37 – 40 lies everywhere outside the average mid-point (41).

In other words, we are saying that the market-makers of these companies have produced a combined best estimate that the time

of the first match goal will be 41 minutes. If this is truly the best estimate, then the value exists in a buy of minutes to the first match goal at 40, with Sportsspread.

The most sophisticated bettors, however, will be aware of what was discussed in an earlier chapter, i.e. that the time of first goal markets are often set artificially high, to accommodate the preponderance of buyers in the market. Allowing for this, any trade would offer marginal value at best.

Time to first England goal (minutes):
52 – 55 (Sporting)
51 – 54 (IG)
51 – 54 (Spreadex)
48 – 51 (Sportsspread)

This is the interesting case of an outright arbitrage. An arbitrage (or 'arb') exists when it is possible to buy with one company and to sell with another, and make a profit regardless of the outcome. In this example, you could buy minutes at 51 with Sportsspread, and sell minutes at 52 with Sporting, and win whatever the outcome.

As an example, if England scored after one minute, you would lose 50 times your stake with Sportsspread, and win 51 times your stake with Sporting. At the other end of the scale, if England scored after 90 minutes (or didn't score at all), the market makes up at 90, and you would win 39 times your stake with Sportsspread (lose 38 times your stake with Sporting).

The problems with arbs are outlined in an earlier chapter. Basically, repeated trading at these prices will either make you very unpopular with the companies concerned, with associated consequences, or else your stake is liable to be severely curtailed if you are allowed to trade at the arb position at all. This market is probably best avoided, at least until and unless the arb turns into a Quarb. It is worth noting in this context that spread betting companies tend to assume that those who systematically trade when 'arbs' exist are taking both sides of the 'arb', whether they are or not.

First Sweden goal:
60 – 63 (Sporting)

61 – 64 (IG)
58 – 61 (Spreadex)
56 – 59 (Sportsspread)

Again we have a straight arb between Sporting and Sportsspread. For the reasons mentioned above this is probably best avoided again.

25 – 10 – 0 Index (England)
13.5 – 15 (Sporting)
14 – 15.5 (IG)
13 – 14.5 (Cantor)
13 – 14.5 (Spreadex)
13 – 14.5 (Sportsspread)
The mid-points average is:
$$(14.25 + 14.75 + 13.75 + 13.75 + 13.75)/5 = \quad 14.05$$
Almost a full Quarb, given a sell of England at 14 with IG, but not quite.

25 – 10 – 0 Index (Sweden)
8.5 – 10 (Sporting)
8.5 – 10 (IG)
9 – 10.5 (Cantor)
9 – 10.5 (Spreadex)
9.5 – 11 (Sportsspread)
The average of the mid-points is:
$$(9.25 + 9.25 + 9.75 + 9.75 + 10.25)/5 = \quad 9.65$$
No Quarb.

Exchange Spread Betting
Another avenue open to those attracted by spread betting is that of the betting exchanges. Let's examine some of the options.

The Goal Supremacy Market
In the minutes before the kick-off in the England v. Sweden game, it was possible to sidestep the spread firms and to trade the range markets instead on Betfair. The quotes were as follows:

Sell England supremacy @ 0.4 for up to £65.
Buy England supremacy @ 0.45 for up to £5; at 0.5 up to £324; at 0.7 up to £50.

The market was bounded between - 3 goals and + 4 goals, in order to set a maximum limit on potential liabilities. The trading unit was 0.05 of a goal.

Since it was possible to sell England supremacy at 0.4 with Cantor, commission-free, the only possible advantage to playing this market in the exchanges was the limited liability imposed by the operators. If you are really worried about a 12 – 0 scoreline, you could limit your stakes instead, although that would also limit your potential profit.

The Bookings Market

On Betfair, the quotes were as follows:

Sell bookings @ 31 for up to £1.
Buy bookings @ 36 for up to £10; at 38 up to £8; at 39 up to £20.

The market was bounded between 0 and 120 bookings points. The trading unit was 1 point.

There is clearly no advantage at all in a sell at 31, since you could sell with Sporting, IG and Sportsspread at 36, commission-free.

You could buy at 36, instead of a best price of 37, available with Spreadex. However, you would be limited to £10 a point, you would pay up to 5% commission on any winnings, and you would be subject to a maximum ceiling of 120 bookings points however many cards were issued. The best strategy is apparently to buy at 36 with Betfair, or at 37 with Spreadex.

To see the relative merits of each option, consider just the following possible outcomes, and assume a unit stake of £10:

a.   No bookings points
b.   20 bookings points
c.   40 bookings points
d.   100 bookings points
e.   200 bookings points

No bookings points
Loss of £360 (Betfair)
Loss of £370 (Spreadex)

20 bookings points
Loss of £160 (Betfair)
Loss of £170 (Spreadex)

40 bookings points
Profit of £40 on Betfair (£38 after deducting 5% commission)
Profit of £30 on Spreadex

100 bookings points
Profit of £640 on Betfair (£608 after deducting 5% commission)
Profit of £630 on Spreadex

200 bookings points
Profit of £840 on Betfair (£798 after deducting 5% commission)
Profit of £1630 on Spreadex

Clearly, therefore, the higher the number of bookings you expect, the more favourably you would consider the bet at 37 on Spreadex, and notably if you expect it to top 120 bookings points.

The Corners Market

On Betfair the quotes were as follows:

Sell corners @ 10.5 for up to £12; at 10.4 up to £22; at 9.5 up to £37.

Buy corners @ at 10.6 for up to £35; at 10.7 up to £14; at 10.8 up to £203.

The market was bounded between 7 and 17 corners. The trading unit was 0.1 corners.

There is clearly no advantage in a buy of corners at 10.6 with Betfair when you could buy corners, commission-free, at 10.5 with Cantor or Spreadex, unless you want to be protected

against the possibility of a corners total of less than seven. An alternative strategy, if you are averse to risk, is to reduce your unit stake.

The Total Goals Market

On Betfair the quotes were as follows:

Sell goals @ 2.25 for up to £172; at 2.05 up to £2.
Buy goals @ 2.3 for up to £305; at 2.4 up to £15; at 2.45 up to £66.

The market was bounded between 0 and 6 goals. The trading unit was 0.05 goals.

There was clearly no advantage to a sell of total goals at 2.25, since you could sell at 2.4 with Sportsspread, unless you wanted to lock in the maximum liability provision of the six-goal maximum on Betfair.

The best buy price among the spread companies was the 2.4, with Sporting and Cantor, which compared unfavourably with the possibility of a buy at 2.3 with Betfair.

However, you would pay up to 5% commission on any winnings, and you would be subject to a maximum ceiling of six goals.

Therefore we need to consider whether to buy at 2.3 with Betfair, or at 2.4 with Sporting and Cantor.

To see the relative merits of each option, consider just the following possible outcomes, and assume a unit stake of £100 a goal:

  a.   No goals
  b.   3 goals
  c.   6 goals
  d.   7 goals

No goals
Loss of £230 on Betfair
Loss of £240 on Spreadex

3 goals
Profit of £70 on Betfair (£66.50 after deducting 5% commission)
Profit of £60 on Spreadex

6 goals

Profit of £370 on Betfair (£351.50 after deducting 5% commission)

Profit of £360 on Spreadex

7 goals

Profit of £370 on Betfair (£351 - 50 after deducting 5% commission)

Profit of £460 on Spreadex

Clearly, therefore, the greater the number of goals you expect, the more favourably you would consider the bet at 2.4 on Spreadex, and notably if you expect the goal total to top six.

Chapter 2: If It Looks Too Good To Be True, Then It Is Too Good To Be True!

The heading of the final Chapter is not meant to discourage you from spotting genuine value, but to caution against traps which can easily ensnare the unwary.

A classic example is the first goal line market offered by Betfair. This is a line market, and not a range market. In other words, you are invited to bet whether the first goal will be scored before or after a given time. You win the equivalent of your stake (and your stake returned) if you guess correctly. You lose your stake if you guess wrongly. This is very different from a spread market where you are invited to buy or sell at a given level, and where your winnings/losses are determined by the extent to which you are right or wrong.

The key difference in these two types of bet is that one requires an estimate of the median and the other an estimate of the mean.

The median is the average in the sense that there is an equal chance of the outcome being greater than or less than it. Take, for example, the following fictional list of first goal times in a set of nine matches.

Match 1 – 30 minutes
Match 2 – 8 minutes
Match 3 – 84 minutes
Match 4 – 52 minutes
Match 5 – 70 minutes
Match 6 – 32 minutes
Match 7 – 18 minutes
Match 8 – 10 minutes
Match 9 – 29 minutes

The median time of the first goal is 30 minutes, since there are an equal number of goals scored before and after this time.

8, 10, 18 and 29 are *less* than 30; 32, 52, 70 and 84 are *greater* than 30.

If there are an even number of observations, there are two middle points. To calculate the median, add the two together and divide by two.

The mean time of the first goal is, however, the average time of all the first goals, in the sense of all the times added up and divided by the number of goals.

In this example, the mean time of the first goal is

$30 + 8 + 84 + 52 + 70 + 32 + 18 + 10 + 29 = 333/9 = 37$ minutes.

In other words, the median is less than the mean in this example. For any goal likely to be scored in the first half of playing time, this is likely to be true, as the mean is skewed by a few very high numbers. The converse applies to goals likely to be scored in the second half of playing time.

For the purpose of spread betting, it is clear that the mean is the important number, as a small number of very low or high numbers are important in determining your final profit or loss.

For the purpose of line betting, however, it is the median which is important, as a very high number is no more significant than a much lower number, as long as they are both above or both below the level at which you traded.

It is important not to confuse these two numbers in formulating your betting strategy in line and range (or spread) betting markets respectively. To illustrate the issue, I have collated the times of all the goals scored in World Cup 2002 (see Appendix 2).

We would expect, as explained above, that for a series of goals scored in the first half of play (such as the first goal in each match) that the median would tend to be less than the mean.

In fact, the relevant calculation produces the following results:

Median time of 1st goal = 32 minutes; mean time of 1st goal = 36 minutes.

For comparison purposes, the median time of the first goals scored in the Premiership in the 2001 – 2002 season was 28 minutes, whereas the mean time of the first goal scored was 35.4 minutes.

In conclusion, it is important to distinguish between mean times (suitable for trading in the 'time of first goal' spread or range markets) and median times (suitable for trading in the 'time of first goal' line markets).

Trade accordingly.

I have also collated (Appendix 2) the times of all the disciplinary cards issued in World Cup 2002. For the particularly assiduous reader, a useful exercise would be to use these data similarly to calculate the difference between mean and median times in the bookings market.

Finally, an interesting and potentially useful perspective of goal times can be gleaned courtesy of what is known in statistical circles as the *Poisson distribution*. Originally, it was formulated to model the rate at which Prussian officers were kicked to death by horses. Nowadays it has a more prosaic use, i.e. to calculate the likelihood of a given number of goals being scored by each team. It works like this.

First, we need an estimate of the number of goals that a team will score in a given match. From this estimate, the Poisson distribution allows us to estimate the chance of any game finishing with any particular scoreline.

Get this right, and there are potentially rich pickings available across a number of markets.

The Poisson distribution is included in a table (see Appendix 3) which estimates the percentage chance of a team scoring a given number of goals based on our estimate of the number they are likely to score. The value of the table lies in the fact that the predictions of the Poisson distribution tend to conform to actual results over time.

For example, if we estimate that Southampton will, on average, score one goal against Arsenal, then the Poisson distribution tells us that there is a 36.8% chance that they will not score any goals on this particular occasion. It tells us that there is a 73.6% chance of one goal or less, a 92.0% chance of 2 goals or less, a 98.1% chance of 3 goals or less, and so on. This can be read off directly from the table. Look down the vertical column on the left of the table to 1.0, and read across the horizontal row to find the probability of any given number of goals (or less) being scored. From this table we can even work out the probability of exactly 3 goals being scored, say. To do this, we read off the likelihood of 2 goals or less being scored (92.0%), and then the likelihood of 3 goals or less being scored (98.1%). The difference between these numbers (6.1%) is the likelihood of exactly

3 goals being scored.

Similarly, the chance of Southampton scoring exactly one goal is equal to the chance of them scoring 1 goal or fewer (73.6%) and the chance of them scoring no goals (36.8%). This works out at 36.8%.

To take another example, we estimate that Arsenal will score, on average, 1.5 goals against Southampton. We can now use the Poisson table to estimate the likelihood of Arsenal scoring no goals on this occasion, or one, or indeed any number of your choice.

As before, read down to 1.5. Then read across. This tells us the following:

Arsenal chance of scoring no goals   =   22.3%
Arsenal chance of scoring 1 goal or less =   55.8%
Arsenal chance of scoring 2 goals or less =   80.9%
Arsenal chance of scoring 3 goals or less =   93.4%
Arsenal chance of scoring 4 goals or less =   98.1%
Arsenal chance of scoring 5 goals or less =   99.6%
Arsenal chance of scoring 6 goals or less =   99.9%

We can use the Poisson table to estimate the true probability of any given scoreline, although to do so we must make the not completely realistic assumption that the number of goals scored by one team is independent of the number of goals scored by the other. Not completely realistic, but the results of adopting this assumption seem to work out reasonably well in practice.

On this basis, if we want to estimate the likelihood of a 2 – 1 scoreline to Arsenal, it's as simple as this:

First, calculate the probability of Arsenal scoring exactly 2 goals.

From Appendix 3, the chance of Arsenal scoring 2 goals or less is 80.9%, and the chance of Arsenal scoring 1 goal or less is 55.8%. Therefore, it follows that the chance that Arsenal will score exactly 2 goals is the difference between these figures, i.e. 25.1%.

Second, calculate the probability of Southampton scoring 1 goal exactly. This is 36.8% (same reasoning as above).

Now multiply these together.

25.1% × 36.8% = 9.24%.

Thus the chance of a 2 – 1 scoreline to Arsenal, according to

the workings of the Poisson table, is 9.24%.

This can be converted into odds quite simply: (100 - 9.24)/9.24 = 90.76/9.24 = 9.82 to 1

Now that you know how to estimate the true odds, compare these with the abundance of odds actually on offer in the various forums. Another arrow in the quiver.

Conclusion

In this book, I have drawn upon the experience I have built up over many years of professional study of betting markets.

In particular, I have investigated and sought to make accessible to a wider audience the results of an extensive body of work contributed by experts around the world, in order to study the way in which bettors really can turn the odds in their favour. Much of this work has, until known, been relatively unknown outside of academic circles.

In doing so, I have sought to distinguish what is valid and useful from what is merely speculative or just plain wrong.

I have tried to do this in an entertaining and topical, as well as an informative, manner. In this quest, I hope I have succeeded.

The Golden Age of betting is now. We are living in it. I hope that this book will help you to enjoy and profit from our good fortune to the full.

Appendix 1: Some Interesting And Useful Internet Sites

These are not arranged in any special order and are all included in good faith. As a general rule, however, bettors should always beware. Internet bookmakers do go out of business still owing money to clients.

Be careful in judging whether to bet with a firm.

Bookmakers

www.tote.co.uk
www.bluesq.com
www.paddypower.com
www.sportingbet.com
www.eurobet.com
www.gamebookers.com
www.ukbetting.com
www.willhill.com
www.sportingodds.com
www.ladbrokes.com
www.skybet.com
www.bet365.co.uk
www.betinternet.com
www.intertops.com
www.sportsinteraction.com
www.sportstab.com.au
www.centrebet.com
www.expekt.com
www.betandwin.com
www.stanjames.com
www.canbet.com.au
www.victorchandler.com
www.thegreek.com
www.planetpinnacle.com
www.betabet.com
www.yabet.com

218

www.totalbet.com
www.xodds.com
www.attheraces.co.uk
www.betonmarkets.com
www.betdirect.net

Spread Betting Companies

www.sportingindex.com
www.cantorindex.com
www.igindex.co.uk
www.igsport.com
www.cantorsport.com
www.spreadex.com
www.spreadexfinancials.com
www.cityindex.co.uk
www.finspreads.com
www.tradindex.com
www.deal4free.com

Betting Exchanges

www.betfair.com
www.betdaq.com
www.betdaq.co.uk
www.ggbet.com (see also www.iwageru.co.uk)
www.sportingoptions.co.uk
www.tradindex.com (sports)
www.intrade.com
www.newsfutures.com
www.biz.uiowa.edu/iem
www.tradesports.com
www.tradingsports.com

Sports and Betting Information and Advice

www.highstakes.co.uk
www.racingpost.co.uk
www.sportinglife.com
www.skysports.com

BETTING TO WIN

www.bbc.co.uk/sport
www.football365.com
www.readabet.com
www.oddschecker.com
www.oddschecker.co.uk
www.betbrain.com
www.easyodds.com
www.bestbetting.com
www.sportsbettingindex.com
www.soccerbase.com
www.sportal.com
www.smartbet.co.uk
www.attheraces.co.uk
www.gamebookers.com
www.spreadtrades.com
www.bookiesindex.com
www.bettingadvice.com
www.crastinum.com
www.bookiebusters.net
www.soccernet.com
www.onewaybet.com
www.opta.co.uk
www.bethelp.com

Appendix 2: World Cup 2002 Statistics

Times of goals (+ indicates stoppage time, where relevant)
Times of cards (+ indicates stoppage time, where relevant)

For betting analysis purposes, we treat 45 as the maximum for a first half goal/card, and 90 as the maximum for a second half goal/card. Goals/cards after full time are shown but excluded for betting analysis purposes.

When a red card results from a second yellow, only the time of the red card is shown.

N.B. Where no goals are scored in a match, this is normally classed as 90 for 'time of first goal' purposes.

Group A

FRANCE v. SENEGAL
Score: 0 – 1
Goal times: 30
Yellow card times: 47+ (i.e. 45), 51
Red card times: –

URUGUAY v. DENMARK
Score: 1 – 2
Goal times: 45, 47, 83
Yellow card times: 25, 34, 51
Red card times: –

FRANCE v. URUGUAY
Score: 0 – 0
Goal times: –
Yellow card times: 11, 47+ (i.e. 45), 47+ (i.e. 45), 48+ (i.e. 45), 47
Red card times: 25

DENMARK v. SENEGAL
Score: 1 – 1
Goal times: 16, 52
Yellow card times: 7, 10, 20, 62, 82, 84
Red card times: 80

DENMARK v. FRANCE
Score: 2 – 0
Goal times: 22, 67
Yellow card times: 27, 71, 81
Red card times: –

SENEGAL v. URUGUAY
Score: 3 – 3
Goal times: 20, 26, 38, 46, 69, 88
Yellow card times: 2, 4, 8, 19, 35, 39, 40, 69, 82, 82, 87, 87
Red card times: –

Group B

PARAGUAY v. SOUTH AFRICA
Score: 2 – 2
Goal times: 39, 55, 63, 91(i.e. 90)
Yellow card times: 3, 9, 35, 38, 47+ (i.e. 45), 65, 90, 93 (i.e. 90)
Red card times: –

SPAIN v. SLOVENIA
Score: 3 – 1
Goal times: 44, 74, 82, 87
Yellow card times: 36, 46+ (i.e. 45), 65
Red card times: –

SPAIN v. PARAGUAY
Score: 3 – 1
Goal times: 10, 53, 69, 83
Yellow card times: 9, 44, 60, 80
Red card times: –

SOUTH AFRICA v. SLOVENIA
Score: 1 – 0
Goal times: 4
Yellow card times: 12, 35, 52, 62, 75
Red card times: –

SOUTH AFRICA v. SPAIN
Score: 2 – 3
Goal times: 4, 31, 46+ (i.e. 45), 53, 56
Yellow card times: 16, 35, 52, 62, 67, 69, 75, 81
Red card times: –

SLOVENIA v. PARAGUAY
Score: 1 – 3
Goal times: 46+ (i.e. 45), 65, 73, 84
Yellow card times: 4, 15, 68, 69, 79
Red card times: 22 (2nd yellow), 81

Group C

BRAZIL v. TURKEY
Score: 2 – 1
Goal times: 47+ (i.e. 45), 50, 87
Yellow card times: 21, 24, 44, 73,
Red card times: 86, 94 (i.e. 90) (2nd yellow)

CHINA v. COSTA RICA
Score: 0 – 2
Goal times: 61, 65
Yellow card times: 15, 17, 60, 72, 77, 79, 85
Red card times: –

BRAZIL v. CHINA
Score: 4 – 0
Goal times: 15, 32, 45, 55
Yellow card times: 25, 69
Red card times: –

BETTING TO WIN

COSTA RICA v. TURKEY
Score: 1 – 1
Goal times: 56, 86
Yellow card times: 20, 24, 43, 45, 89
Red card times: –

COSTA RICA v. BRAZIL
Score: 2 – 5
Goal times: 10, 13, 38, 39, 56, 62, 64
Yellow card times: 93 (i.e. 90)
Red card times: –

TURKEY v. CHINA
Score: 3 – 0
Goal times: 6, 9, 85
Yellow card times: 19, 30, 46+ (i.e. 45), 62, 81
Red card times: 58

Group D

SOUTH KOREA v POLAND
Score: 2 – 0
Goal times: 26, 53
Yellow card times: 31, 70, 79, 84, 90
Red card times: –

USA v. PORTUGAL
Score: 3 – 2
Goal times: 4, 29, 36, 39, 71
Yellow card times: 34, 52, 92 (i.e. 90)
Red card times: –

SOUTH KOREA v. USA
Score: 1 – 1
Goal times: 24, 78
Yellow card times: 30, 39, 80
Red card times: –

PORTUGAL v. POLAND
Score: 4 – 0
Goal times: 14, 65, 77, 88
Yellow card times: 21, 25, 27, 31, 39
Red card times: –

PORTUGAL v. SOUTH KOREA
Score: 0 – 1
Goal times: 70
Yellow card times: 22, 24, 57, 74, 83, 93 (i.e. 90)
Red card times: 27, 66 (2nd yellow)

POLAND v. USA
Score: 3 – 1
Goal times: 3, 5, 66, 83
Yellow card times: 44, 46, 63, 72, 86
Red card times: –

Group E

IRELAND v. CAMEROON
Score: 1 – 1
Goal times: 39, 52
Yellow card times: 30, 51, 82, 89
Red card times: –

GERMANY v. SAUDI ARABIA
Score: 8 – 0
Goal times: 20, 25, 40, 46+ (i.e. 45), 70, 73, 84, 91 (i.e. 90)
Yellow card times: 43, 83, 91 (i.e. 90)
Red card times: –

GERMANY v. IRELAND
Score: 1 – 1
Goal times: 19, 92 (i.e. 90)
Yellow card times: –
Red card times: –

CAMEROON v. SAUDI ARABIA
Score: 1 – 0
Goal times: 66
Yellow card times: 10, 59
Red card times: –

CAMEROON v. GERMANY
Score: 0 – 2
Goal times: 50, 79
Yellow card times: 8, 9, 29, 31, 37, 42, 42, 44, 56, 58, 60, 72, 74, 81
Red card times: 40 (2nd yellow), 77 (2nd yellow)

SAUDI ARABIA v. IRELAND
Score: 0 – 3
Goal times: 7, 61, 87
Yellow card times: 61, 70
Red card times: –

Group F

ENGLAND v. SWEDEN
Score: 1 – 1
Goal times: 24, 59
Yellow card times: 12, 47+ (i.e. 45), 73
Red card times: –

ARGENTINA v. NIGERIA
Score: 1 – 0
Goal times: 63
Yellow card times: 51, 73, 90
Red card times: –

SWEDEN v. NIGERIA
Score: 2 – 1
Goal times: 27, 35, 63
Yellow card times: 31, 69, 80
Red card times: –

ARGENTINA v. ENGLAND
Score: 0 – 1
Goal times: 44
Yellow card times: 13, 29, 50
Red card times: –

SWEDEN v. ARGENTINA
Score: 1 – 1
Goal times: 59, 88
Yellow card times: 55, 58, 65, 75, 78
Red card times: 47+ (i.e. 45)

NIGERIA v. ENGLAND
Score: 0 – 0
Goal times: –
Yellow card times: –
Red card times: –

Group G

CROATIA v. MEXICO
Score: 0 – 1
Goal times: 60
Yellow card times: –
Red card times: 60

ITALY v. ECUADOR
Score: 2 – 0
Goal times: 7, 27
Yellow card times: 14, 49, 54
Red card times: –

ITALY v. CROATIA
Score: 1 – 2
Goal times: 55, 73, 76
Yellow card times: 39, 51
Red card times: –

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MEXICO v. ECUADOR
Score: 2 – 1
Goal times: 5, 28, 57
Yellow card times: 15, 27, 49, 61, 65, 87
Red card times: –

MEXICO v. ITALY
Score: 1 – 1
Goal times: 34, 85
Yellow card times: 2, 5, 10, 43, 55, 57, 84
Red card times: –

ECUADOR v. CROATIA
Score: 1 – 0
Goal times: 48
Yellow card times: 72, 86, 92 (i.e. 90)
Red card times: –

Group H

JAPAN v. BELGIUM
Score: 2 – 2
Goal times: 57, 59, 67, 75
Yellow card times: 21, 31, 54, 62, 82
Red card times: –

RUSSIA v. TUNISIA
Score: 2 – 0
Goal times: 59, 64
Yellow card times: 27, 50, 75, 88
Red card times: –

JAPAN v. RUSSIA
Score: 1 – 0
Goal times: 51
Yellow card times: 13, 15, 38, 42, 60, 91 (i.e. 90)
Red card times: –

TUNISIA v. BELGIUM
Score: 1 – 1
Goal times: 13, 17
Yellow card times: 22, 40, 43, 68, 69
Red card times: –

TUNISIA v. JAPAN
Score: 0 – 2
Goal times: 48, 75
Yellow card times: 21, 81
Red card times: –

BELGIUM v. RUSSIA
Score: 3 – 2
Goal times: 7, 52, 78, 82, 88
Yellow card times: 12, 14, 39, 64, 84
Red card times: –

Round of 16

GERMANY v. PARAGUAY
Score: 1 – 0
Goal times: 88
Yellow card times: 26, 35, 50, 71, 92 (i.e. 90)
Red card times: 92 (i.e. 90)

DENMARK v. ENGLAND
Score: 0 – 3
Goal times: 5, 22, 44
Yellow card times: 24, 50
Red card times: –

SWEDEN v. SENEGAL
Score: 1 – 1 (1 – 2 after extra time)
Goal times: 11, 37, 104 (excluded)
Yellow card times: 73, 94 (excluded)
Red card times: –

BETTING TO WIN

SPAIN v. IRELAND
Score: 1 – 1 (Match eventually decided on penalties)
Goal times: 8, 90
Yellow card times: 62, 87, 89
Red card times: –

MEXICO v. USA
Score: 0 – 2
Goal times: 8, 65
Yellow card times: 26, 37, 47, 50, 53, 67, 70, 81, 83, 84
Red card times: 88

BRAZIL v. BELGIUM
Score: 2 – 0
Goal times: 67, 87
Yellow card times: 24, 28
Red card times: –

JAPAN v. TURKEY
Score: 0 – 1
Goal times: 12
Yellow card times: 21, 44, 45, 91(i.e. 90)
Red card times: –

S. KOREA v. ITALY
Score: 1 – 1 (2 – 1 after extra time)
Goal times: 18, 88, 117 (excluded)
Yellow card times: 4, 17, 22, 55, 59, 80, 99 (excluded), 115 (excluded)
Red card times: 103 (2nd yellow) (excluded)

Quarter-finals

ENGLAND v BRAZIL
Score: 1 – 2
Goal times: 23, 47+ (i.e. 45), 50
Yellow card times: 75, 86
Red card times: 57

GERMANY v. USA
Score: 1 – 0
Goal times: 39
Yellow card times: 40, 41, 66, 68, 68, 69, 70
Red card times: –

SPAIN v. SOUTH KOREA
Score: 0 – 0 (3:5 after penalty shoot-out)
Goal times: –
Yellow card times: 52, 53, 111 (excluded)
Red card times: –

SENEGAL v. TURKEY
Score: 0 – 1
Goal times: 94 (i.e. 90)
Yellow card times: 12, 22, 63, 87
Red card times: –

Semi-finals

GERMANY v SOUTH KOREA
Score: 1 – 0
Goal times: 75
Yellow card times: 71, 85, 94 (i.e. 90)
Red card times: –

BETTING TO WIN

BRAZIL v. TURKEY
Score: 1 – 0
Goal times: 49
Yellow card times: 41, 59, 90
Red card times: –

3rd place play-off

SOUTH KOREA v. TURKEY
Score: 2 – 3
Goal times: 1, 9, 13, 32, 93
Yellow card times: 23, 50, 83
Red card times: –

World Cup final

GERMANY v. BRAZIL
Score: 0 – 2
Goal times: 67, 79
Yellow card times: 6, 9
Red card times: –

Appendix 3:Poisson Table

chance of scoring x goals or less; x =

Expected No. of goals	0	1	2	3	4	5	6
0.1	0.905	0.995	1.000	1.000	1.000	1.000	1.000
0.2	0.819	0.982	0.999	1.000	1.000	1.000	1.000
0.3	0.741	0.963	0.996	1.000	1.000	1.000	1.000
0.4	0.670	0.938	0.992	0.999	1.000	1.000	1.000
0.5	0.607	0.910	0.986	0.998	1.000	1.000	1.000
0.6	0.549	0.878	0.977	0.997	1.000	1.000	1.000
0.7	0.497	0.844	0.966	0.994	0.999	1.000	1.000
0.8	0.449	0.809	0.953	0.991	0.999	1.000	1.000
0.9	0.407	0.772	0.937	0.987	0.998	1.000	1.000
1.0	0.368	0.736	0.920	0.981	0.996	0.999	1.000
1.1	0.333	0.699	0.900	0.974	0.995	0.999	0.999
1.2	0.301	0.663	0.880	0.966	0.992	0.999	1.000
1.3	0.273	0.627	0.857	0.957	0.989	0.998	1.000
1.4	0.247	0.592	0.834	0.946	0.986	0.997	0.999
1.5	0.223	0.558	0.809	0.934	0.981	0.996	0.999
1.6	0.202	0.525	0.783	0.921	0.976	0.994	0.999
1.7	0.183	0.493	0.757	0.907	0.970	0.992	0.998
1.8	0.165	0.463	0.731	0.891	0.964	0.990	0.997
1.9	0.150	0.434	0.704	0.875	0.956	0.987	0.997
2.0	0.135	0.406	0.677	0.857	0.947	0.983	0.996
2.2	0.111	0.355	0.626	0.819	0.928	0.975	0.993
2.4	0.091	0.308	0.570	0.779	0.904	0.964	0.988
2.6	0.074	0.267	0.518	0.736	0.877	0.951	0.983
2.8	0.061	0.231	0.470	0.692	0.848	0.935	0.976
3.0	0.050	0.199	0.423	0.647	0.815	0.916	0.967
3.2	0.041	0.171	0.380	0.603	0.781	0.895	0.955
3.4	0.033	0.147	0.340	0.558	0.744	0.871	0.942
3.6	0.027	0.126	0.303	0.515	0.706	0.844	0.927

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