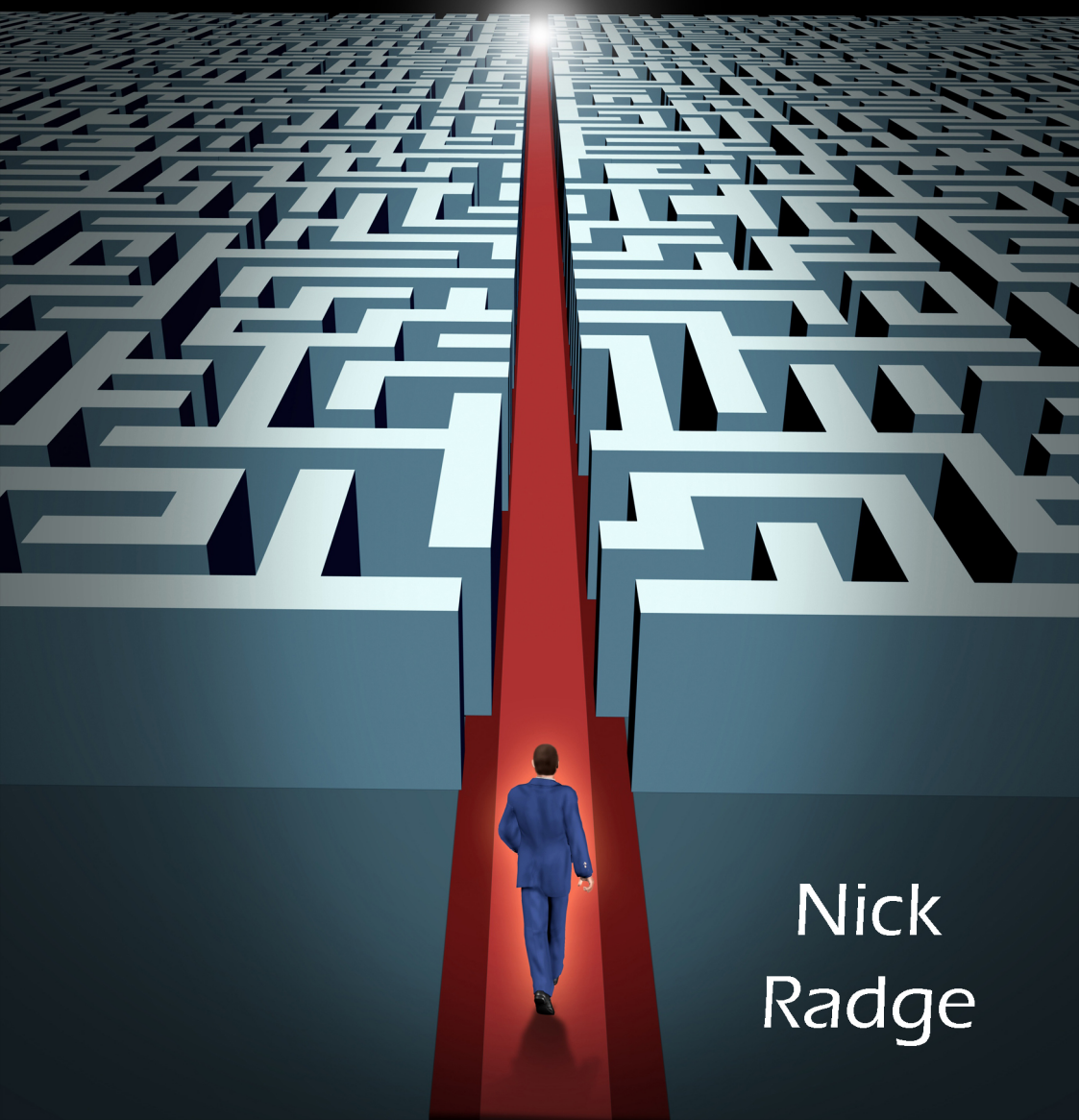


# Successful Stock Trading

A Guide to Profitability



Nick  
Radge

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# INTRODUCTION

This e-book is designed to show you an alternative way of looking at profitability and your own trading. My reputation in the retail marketplace is as a specialist in risk management and systematic trading strategies. While systematic trading may sound complicated to the new trader, it simply means a strategy that is defined by very specific rules – rules to define the trend, enter and the market and manage risk. This is the way I have always traded and I am happy to share my insights into trading the global markets.

I deal with technical analysis rather than fundamental analysis. It's my belief that the picture of a stock's current price action and price history cannot be disputed – it is a 100 per cent certainty. A company's balance sheet, earnings and disclosures, however, can be disputed. Bear Sterns, Lehman Brothers, MF Global and Enron are some better known and recent examples where many fundamental analysts got it plain wrong and, unfortunately, investors paid the price for the poor analysis. Other examples are just as bad and I collected a huge number of examples in the early 2008 deluge of earnings downgrades. We can see the same trend of poor disclosure throughout the world. While an in-depth look at all of these examples is beyond the scope of this book, suffice to say I believe the reliance of many analysts on company disclosures is questionable.

I readily accept that the application of both types of analysis is equally subjective. In order to establish a fair valuation for a stock, a fundamental analyst must make assumptions on future earnings growth and other contributing factors, such as the expected period of growth, non-growth periods and benchmark interest rates. Once these assumptions have been plugged into analysts' models, the resulting valuations vary considerably. These valuations are easily accessible by reviewing consensus data. However, the same applies for the technicians. The way one pattern is

read can vary among analysts. In this area, I see technical analysis and fundamental analysis standing side by side.

However, the main benefit of technical analysis over fundamental analysis is that the charts provide a very specific right or wrong point where protective stops can be placed and monetary losses can be limited. As you'll see shortly, the limitation of losses is paramount to the success of a trader and an investor, both financially and psychologically.

People may be forewarned of situations such as the collapses of Bear Sterns and Enron by the deteriorating price action. Knowing when one is wrong using fundamentals, though, is a very grey area. Depending on the style of analysis employed, the lower a share price goes below its valuation may mean the better value the stock becomes. On the other hand, it may mean the valuation was incorrect to begin with. It's a hard ask for any analyst to amend his or her analysis and valuation in the face of a plunging share price – they are usually only forced do so after the fact and after the monetary damage is done.

At the time of writing, I've been trading and investing since 1985, a total of 26 years, or just over half my lifetime. I have personally traded many global instruments; from stocks to bonds, from commodities to foreign exchange and ETFs. In the early 1990s, I worked in the pits of the Sydney Futures Exchange. Later, in the mid-1990s, I worked in dealing rooms in London and Singapore before starting a hedge fund in 1998. In 2001, with advancing regulatory conditions, I decided to move to another investment bank where I became an associate director and managed accounts using systematic trading approaches built around technical analysis.

It was in the day-to-day dealing with retail clients that I realised the extreme psychological factors that play havoc with their decisions. The need to almost always be correct, the inability to realise when analysis is wrong and then to take the appropriate action to defend an account, the fear of losing money, the over-reliance on unproven theories, or any

mundane theory for that matter – all are products of psychology, and the list goes on. However, one factor clearly stood out above all others to create the most havoc – not understanding that profits can be generated regardless of what tools or analysis are used.

This ebook is about understanding how to make profits.

As we've moved further into the era of self-managed capital and personal responsibility for one's own financial affairs, it has always been pleasurable to hear how my analysis has made at least a small difference.

On a final note, remember – there is more to life than trading. The markets and the opportunities found within them will always be there tomorrow.

**Nick Radge**

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# CHAPTER 1 - AIMS

Your aim is to be profitable.

My aim is to help you understand how to make yourself profitable.

There may not appear to be a profound difference in the above statements, but let's remember that the vast majority of traders, and active investors for that matter, are losers – or, at best, marginal winners. Some people pay educators up to \$20000 to help them find an edge or the secret to generating profits in the markets. They listen to poor advice, perhaps from non-licensed practitioners, and rarely take any responsibility for their own actions. If you are like many other beginners, you probably already feel as though you've been through the ringer, trying many different methods and reading any book you could get your hands on. I call this the *beginner's cycle* – moving back and forth between methods and ideas that just never eventuate into any concrete or consistent profits. It can be an expensive and long journey but, more importantly, it's an extremely frustrating journey that causes many to give up.

While finding a trading or investing style that suits you is important, it is more important to understand and accept why profitability occurs. I say 'accept' because what I put forward here is usually dismissed for simplifying a so-called complex concept. But simple works through thick and thin, good and bad. (Of course, psychology is also extremely important; however, as I am not an expert in that field, I won't be exploring that side of the equation in too much depth.)

What I would like to do is to realign the thinking processes that most likely operate within you. To start with I'll work through a few issues and hopefully get you thinking differently about them. What I'd like you to do as you read through is ask questions of yourself and those in the trading community you may have come in contact with. Rather than simply



agreeing or disagreeing with my points, see if you can actually relate to them and understand the consequences of my arguments. Trading is about opening your mind to possibilities. After 26 years in the markets I am still learning, still researching and still passionate. Passion is the most important thing to develop – from there, profitable trading will flow to you.

### **Trading tools and indicators**

If we placed 100 consistently profitable traders in a room and asked each to discuss his or her trading style and techniques in five sentences or less, in my experience, whilst each person would use different tools and styles, they would all be trying to achieve the same goal – that is, to generate profits.

Every time you speak with another trader (regardless of whether he or she is successful), every time you read a trading book, every time you receive advice, there will always be new information to take in – usually about an entry technique, or a new style, method or indicator. Everyone has an opinion. There are many successful traders – or at least people who have had just one profitable trade – and they have achieved this success even though they all use different tools and techniques.

Out of our sample of 100 consistently profitable traders, 40 may use fundamental analysis, 40 may use technical analysis and 20 may just use intuition or gut feel. Even then, the 40 who use fundamental analysis may use different aspects of that field. Some may rely on various ratios, while others may not take any ratios into account and rely solely on insider activity. The list and combinations are infinite.

Of the technical traders, some will rely on moving averages, some on an RSI or other indicator, while others will rely only on price patterns and volume. Yet again, the pieces to the puzzle can be infinite. My point is that each profitable trader will use a different technique, style, investment

time frame, information sources and tools. If all of the 100 traders are profitable through using different techniques, the common denominator cannot be the tools being used. It must be something else. Think about four profitable traders or investors who you know or have read about. Think about Buffett or Soros. Think Tudor Jones. Are they the same in their approach? Their tools, their time frames, their objectives? Of course not. So I reiterate the common denominator must be something else.

If you agree with the above, it becomes easier to suggest that it will not matter which indicator, tool, time frame or software package is superior, and it's certainly not a tightly held secret or insider knowledge that makes them all profitable. All indicators, all technical analysis techniques, all fundamental analysis techniques, all software – everything you use to trade and invest – are nothing but tools.

The tools you use to trade do not maketh the money!

Let me use a simple non-trading analogy, shown in table 1.1.

**Table 1.1: trading versus travel analogy**

	<b>Travel</b>	<b>Trading</b>
<b>Goal</b>	Get from point A to point B	Be profitable
<b>Tool</b>	Car, Boat, Plane, walk, train	Technical analysis, fundamental analysis, guess work

Our first non-trading goal is to travel from point A to point B. The tool to achieve that goal can be any mode of transport, such as a car or boat. As you are well aware, there are many kinds of cars and boats and when choosing one, our decision is largely based on our personality and financial circumstances. The same goes for trading. The goal of trading is to be

profitable. The tools used to achieve this will vary depending on our personalities, financial situations, attitudes to risk and beliefs. Therefore, what you use to trade with are simply tools of the trade and not the reason why you will be profitable.

If you understand why profits occur, you'll be in a position to understand what tools are needed for you to achieve profitability. As a result, you may regret attending all those courses and seminars – or, better still, you may think twice about attending one in future.

### **The common ground among profitable traders**

You may think that after setting aside the tools, there will be nothing left. Wrong. There are two things – one is psychology, the second is mathematics.

We're brought up with a huge focus on being right or wrong. At school we learn. We are then tested on that learning with exams and assignments. This continues all the way through our education – primary school, high school and college. Right and wrong: it's ingrained in us from the word go. When we enter the trading arena, however, being right or wrong has nothing to do with being a successful trader and making profits. If you are like most people and believe that the most important aspect of successful trading is being correct, unfortunately, it's only your ego you're caressing.

You can be a highly profitable trader and lose more often than not – indeed, some of the world's top traders lose more often than not. This concept, though, just doesn't sit well with most people because it's their belief that in order to be profitable you must be right. This line of thinking for an aspiring trader is very, very wrong.

Trading profitably is best understood when broken down into individual and simple pieces. Regardless of the complexities you build into your trading plan and routine, there is one constant underlying truth as to why you make a profit – the basic maths behind the result. All traders,

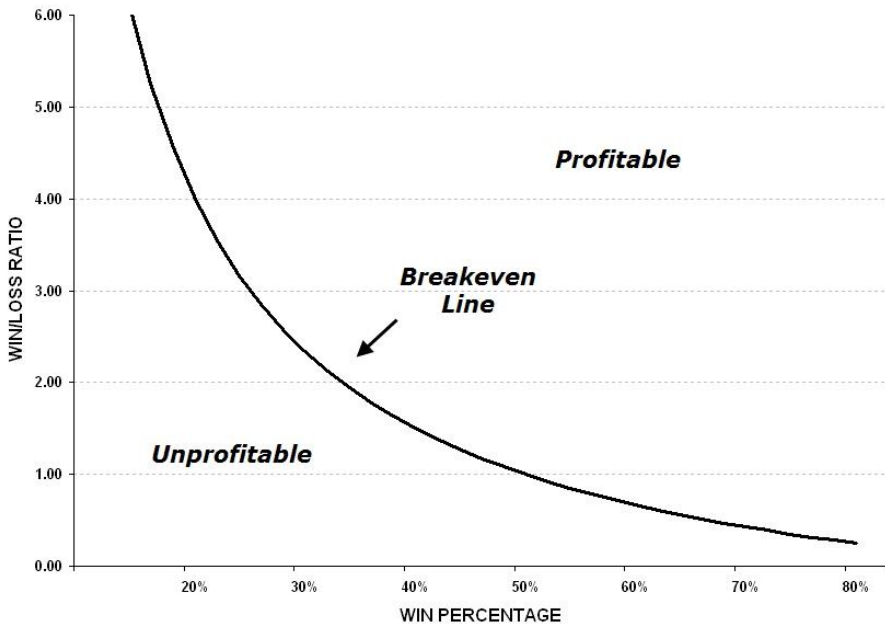
regardless of how or why they trade, will need to understand the mathematics known as expectancy.

Expectancy as a term is probably nothing new to you. That may be the case, but it is everything. Alongside psychology, it's the common denominator among every profitable trader. It's not a fundamental ratio, a technical indicator or the Holy Grail. It's basic maths. The following question can make it easier to understand – would you prefer to risk \$1 to make \$2, or risk \$1 to make \$5?

The answer is quite straightforward – of course, we'd prefer to aim for the higher reward for the same risk. However, once the probability of success, or accuracy of that potential outcome, enters our mind – that is, the possibility of actually being wrong – we tend to change the way we think. We revert back to our core beliefs of right and wrong. Because we are usually required to be right in order to achieve reward, we then start thinking that we could be wrong – and so lose money as well – and it becomes a difficult issue to deal with.

Figure 1.1 shows a visual representation of the expectancy curve. This curve is made up of two core elements – the win percentage and the win/loss ratio. The win percentage is self-explanatory and simply means the accuracy of your trading. The win/loss ratio is calculated as the average profitable trade divided by the average losing trade. If after 20 trades the average winner is \$200 and the average loser is also \$200, the ratio is 1:1. If the average win is \$400 and the average loss is \$200, the ratio is 2:1. The goal is obviously to be in the upper portion of the graph shown in figure 1.1 – or the positive expectancy, and therefore profitable, area. Most people find they hug the dividing line between profitable and unprofitable trading and, as a result, spend their time alternating between being a marginal winner and a marginal loser. (Just as a side note, no manner of money management will save you if you operate on the negative expectancy side of the curve.)

**Figure 1.1: the expectancy curve – the bottom line**



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This alternating between marginal winning and losing is what causes us to continue to search for a better method. When the normal variance of returns takes us below the line, we tend to get nervous and drop the method, or add more indicators in an attempt to increase the winning percentage. This is our ingrained learning coming back into the equation and is the beginner's cycle operating. The thought 'there must be a better way' always comes back to haunt us. As soon as we think we've found a better way, we slip back below that line and so start the process all over again. The correct course of action, however, is to allow more room for error. Our aim should be to create a method that falls deep within the top section of the curve, well above the line rather than hugging it. That way we won't get nervous when the normal variance of returns takes us below the line.

It is important to remember that no method can be correct all of the time. Every investment instrument – property, shares, trading systems, etc. – will go through periods of growth (generating profits) and consolidation (treading water). Card counters at the blackjack tables also have the same issues. Markets are dynamic. They change their spots whenever they feel like it and as such no method can dynamically change with them. To continue to search for a method that is consistently right will simply be an exercise in frustration and wasted energy. In order to trade deep in the upper expectancy area, an experienced trader will concentrate on the win/loss ratio, not the winning percentage (or accuracy) of the strategy.

I recently watched an infomercial advertising a well-known investment newsletter. They claimed an accuracy rate of 73 per cent with an average profit of 10.3 per cent per recommendation. Obviously, the company hoped that this would encourage people to think they would make money by following the tips and they would therefore subscribe to the newsletter. What the company failed to mention was how much on average they lose on the other 27 per cent of their recommendations. Is this 'slight' oversight not a prime ingredient in the expectancy curve? Of course it is. If their average loss on those wrong recommendations exceeded 27 per cent, they would be net losers. I don't remember them mentioning that part, though.

Clearly, they're playing up to the ingrained right/wrong psychology that manifests itself in less experienced traders. I am far from arrogant in terms of my skills as a stock picker. My line of thinking is that I am no better than a coin toss. I am no better than random – that is, I have no better chance of getting a winning trade more than 50 per cent of the time. That may sound harsh, and you may be thinking that the four years you spent at university must make you better than random. To me, however, it is irrelevant. My discussion here is not one about random trading or the merits of not making a conscious decision to place a trade. What is most important is to shift the focus away from accuracy and toward the

win/loss ratio, because that's the only way to really move into the deeper area of the expectancy curve.

### **The win/loss ratio**

Here is an exercise you can try with an Excel spread sheet.

Enter the following formula in cell A2:

```
=ROUNDDOWN(RAND()*10,0)
```

Copy this formula down column A. (You can continue this as far as you wish to, but more than 1000 is certainly better than 100.)

In cell B2 enter:

```
=if(A2<5,(ROUNDDOWN(RAND()*10,0)),-1)
```

Again, copy this down column B aligned with column A.

In cell B1 we need the total of all the numbers in column B. I will assume you have copied down a considerable way, so use this formula in cell B1:

```
=SUM(B2:B1000)
```

Now repeatedly press the F9 key while watching the number in cell B1. It will never be a negative.

Let's discuss what all this means. Very simply, the formula asks the computer to select a random number between zero and nine. Every time you hit F9, the computer will again calculate another random number for you. If that number is more than four (that is, five, six, seven, eight or nine) the computer will then assign '-1' to that cell. This '-1' means a one-unit loss to our trading – every time we have a loss, we lose one unit of our capital. A loss will usually always be the same amount, as long as we always apply appropriate risk management to our trading. (I say usually because there are certain times where prices may gap through a

protective stop.) Risk management will be discussed in more depth in Chapter 4. To any number that was less than five (that is, zero, one, two, three or four) the computer then assigns yet another random number. This assignment represents a profitable unit to any of those numbers and that profit can be anywhere between zero and nine units.

So we have a scenario that will produce a fifty-fifty chance of a loss or a win. We control the loss by limiting it to a single unit, and when we make a profit we limit it to nine units in this exercise (this is only for our exercise – in the real world, there are no limitations on profits).

As long as we allow this pattern to be repeated over the long term, it can never create a negative number or a loss. Clearly, I have not accounted for trading expenses such as commissions or slippage; however, the theory stands nonetheless.

The average win and the average loss of your trading are directly related to the win percentage. Profitable trading will only emerge when the trader aligns these basic attributes to get a positive expected result.

### **Win/loss ratio versus percentage of profitable trades**

Perhaps you're thinking I'm not that smart or that I haven't thought things through enough – surely if I had, I could win more often than 50 per cent of the time. However, after many years of computer simulation, real trading and reading almost everything written on the topic, the same conclusion always comes forward – maximise the winners, minimise the losers.

Below I test the theory again, this time with a basic trading system. The idea here is that if simple concepts are used, the results will always revert to random – that is, a win percentage of somewhere around 50 per cent. Today it is common knowledge that the vast majority of fund managers fail to beat their respective benchmarks. What this suggests to me is that mediocrity eventually becomes normal. Many fund managers, even with



their complicated strategies, eventually revert to the index and therefore don't add any value; essentially, they're hugging the expectancy curve. They'll only make money if the benchmark index makes money, and they'll also lose money when the index loses money.

Let's use a computer to generate a basic simulation. I have selected the price movements of a major stock index over a 5½ year period of time. During this time, the index increased in value by 41.5 per cent. I then told the computer to buy at the open of every single day – all 1353 of them – and sell on the close each night.

Obviously, this method created a profit, as the trend was certainly up during that time; however, of interest was the winning percentage or the number of days the index was up compared to how many days it was down. This percentage is shown in the following results:

• total net profit	\$16.56
• gross profit	\$169.03
• gross loss	(\$152.64)
• total number of trades	1353
• <b>per cent profitable</b>	<b>53.66%</b>
• number of winning trades	726
• number of losing trades	627
• <b>ratio average win/average loss</b>	<b>0.96</b>
• maximum consecutive winners	11
• maximum consecutive losers	8
• maximum intraday drawdown	(\$12.02)
• profit factor	1.11
• maximum number of contracts held	18
• account size required	\$12.02
• return on account	137.84%

During this five-year bull period, 726 days closed above the open and 627 closed below – or 53.66 per cent were up days. The win/loss ratio is 0.96

or, for argument's sake, 1:1. What this is saying is that all the net profits were made by just a very small percentage of the total days – just 99 out of the 1353. That's a lot of peripheral work to find those profitable days.

If you go back to the expectancy curve in figure 1.1, the results of this very basic test can be plotted right in the middle of the box that's hugging the curve. As such, any small variation in market conditions could take you below that curve at any time. Remember also that I have not included commissions, which would dilute the profitability considerably. While small mathematical edges can make a great system, you need a lot of patience, a lot of capital and a very cheap commission rate to fully take advantage of them.

A lot of people, because they are human and believe that they are smarter than the market, will see a 53 per cent profitability rate and try to tweak the entries and exits to create a better profitability. This is normal – and you could spend the rest of your natural life doing it. So let's speed the process up for you so you can actually enjoy your life.

Let's say that we'll buy the Australian market if the US market was up the prior night. The easiest way to roughly simulate this is to buy if the open of the XJO is above the previous day's closing price, because usually Australia will follow the lead of the US market. However, we'll also make our system a little more sophisticated, because we notice that the market tends to go up for a few days at a time, then down for a few days at a time. Because of this simple cycle, we'll buy and hold for a few days instead of getting out immediately.

The results were as follows:

• total net profit	\$0.76
• gross profit	\$1.52
• gross loss	(\$0.76)
• total number of trades	94

• <b>per cent profitable</b>	<b>73.40%</b>
• number of winning trades	69
• number of losing trades	25
• <b>ratio average win/average loss</b>	<b>0.72</b>
• maximum consecutive winners	11
• maximum consecutive losers	4
• maximum intraday drawdown	(\$0.23)
• profit factor	1.99
• maximum number of contracts held	1
• account size required	\$0.23
• return on account	328.32%

The win rate is over 73 per cent. Now this may refute my random theory, but look what happens to the win/loss ratio – it goes down. If you look back at the expectancy curve in figure 1.1, you can see where these numbers fall. We've moved up the curve a little, but we're still hugging that line. Also of interest in these two examples is that while we've managed to increase the accuracy to 73 per cent, we've decreased the net profitability by a whopping 95 per cent (from \$16.56 to \$0.76). Apart from wasting time, what exactly have we achieved? We have achieved a level of comfort for our right/wrong mentality, but paid for it with a large proportion of our profits. I trade for profit. I don't care about the accuracy. What this tells me is that I should trade for the greater profit, but be prepared for the bad times when they come along. As opposed to not wanting any bad times, I just want to be profitable.

I could fill this whole eBook with similar examples. We could make our systems more and more complicated to help improve those numbers and, hopefully, profitability; however, the more you attempt to improve the numbers by tweaking the entries and exits, the more you adapt your approach to historical price movements. This is called data mining and it is a very serious trap for new and experienced traders alike.

Data mining relies on the benefit of hindsight. It means you have adapted your system to the market conditions of the past and, as we know, the market will never exactly repeat itself. As a result, even if it can be shown that a system would have been great in the past, it will not necessarily be worthwhile or profitable in the future.

There are several well-known authors preaching the back-testing concept, and there are certainly a myriad of vendors selling systems that seem astounding when tested, but that collapse in the real world.

We need a method that will work in varying market conditions and economic cycles. The catch is that such a method is in the maths, not the tools.

**In summary:**

- 1** Everyone can profit in the markets, regardless of their tools.
- 2** Profits are derived from understanding the concept of positive expectancy.
- 3** Attempting to be correct more often than not does not necessarily make you more profitable.
- 4** The amount you win when you win versus the amount you lose when you lose is more important than trying to be right.
- 5** Be wary of infomercials and data mining!

## CHAPTER 2 - SKEWING THE NUMBERS TO WIN

Theory is great, but let's look at practical ways to increase profitability and move deeper into that profitable area on the expectancy curve. To do this, you must increase the win/loss ratio, or as I like to say, skew the numbers in your favour. There are probably many ways to do this but outlined below are a few simple ones that I use.

### **Low-risk entry**

A low-risk entry means the distance between the entry point of the trade and the protective stop is small relative to another trade. The smaller this distance is, the larger the position size can be, as the risk remains the same. If you capture a successful trend with a larger position, the average win will increase with no increase in the initial risk and therefore the average loss will remain static. It really is that simple.

There are two ways to do this:

**1** The first method is to tighten the protective stop. By tightening the protective stop you can trade more shares for the same risk. Empirical evidence can be created via computer simulation – for example, refer to appendix A and B, which show a crude computer test of this theory. I simply told the computer to buy/sell at open, exit at close and test protective stop lengths from one point to 50 points. Note that as the distance between the entry and protective stop is reduced, the win/loss ratio increases. I agree that having a one-point stop would be impossible in the real world, but the test is designed to show the impact tighter stops have on the outcome.

Apart from the win/loss ratio increasing, several other things also occur as the stop gets tightened. The win rate or accuracy decreases, the net profit and loss decreases, and the maximum drawdown decreases. (Maximum

drawdown refers to the largest peak to trough dip in your account balance.)

Importantly, the profit factor increases. The profit factor measures the mathematical comfort level of your trading and is calculated by dividing total net losses into the total net profits. The higher the number, the better the method and the easier it is to trade.

The test shows that while the net profit and loss has declined, the risk has also declined – and at a faster rate, suggesting the low-risk entry creates a better risk/reward proposition. The better risk/reward proposition means you can regain the lost profitability by trading at a higher risk. What this means is that the journey to profitability is a lot smoother and, as such, you can trade with slightly more risk in order to regain the losses without increasing the maximum drawdown. Instead of trading with 2 per cent risk, for example, you may opt to trade with 3 per cent risk.

So what is more profitable – a low win percentage (accuracy) with a higher win/loss ratio, or a high win percentage (accuracy) with a low win/loss ratio? The answer is the former. A lower win percentage with a higher win/loss ratio will be more profitable.

**2** The second way to gain a low-risk entry is start with the protective stop point and work backward to the entry point. This means that, although you may identify an entry set-up, you need to pinpoint the protective stop point first. Once you have done this, ensure the entry point falls within the low-risk criteria.

### **Breakeven stop**

Being able to move the stop to the breakeven point as soon as possible offers a psychological advantage because you can participate in a trade that, theoretically, has no risk. More importantly though, over time, the average loss will decrease if and when the breakeven stop gets activated. This will naturally increase the win/loss ratio and add further buffer to the

expectancy curve. You might think that a breakeven stop would increase the loss rate. It will to a point, because as the stop is closer to the current price action you have greater chance of getting stopped out due to day-to-day price gyrations. But it also has an important psychological role to play. It stops *hope* from entering your trading. You should never *hope* that a trade will come good – the trade will either go in your favour immediately or it won't. If it doesn't, you need to take defensive action.

Here are two simple guidelines that I use to apply a breakeven stop:

- Move the protective stop to breakeven if the position moves in your favour by 1.5 to 2 times the initial risk. For example, if the initial risk on the trade was \$400, move the stop to breakeven when the unrealised profit is between \$600 and \$800. While you may occasionally get stopped out at breakeven as the market reverses, having your breakeven stop at this point will decrease the average losing trade and therefore increase the win/loss ratio. Further, if you have the trade entry point correct, prices should not reverse that far.
- Make the market prove your position through prices moving in your favour. If it doesn't, move the stop toward breakeven after a few days. Don't hope – there is no point allowing a position to wallow around your entry price. If you do allow the market some scope and so leave the initial stop where it is, you are starting to hope it will eventually move in your favour. It is often said that a great trade will move in your favour immediately. If it doesn't, get out, decrease the loss (and therefore the average loss), reassess and try again. By doing this, you're keeping your losses down and not wasting your time waiting for a trade to come good. I'd rather take four \$100 losses rather than one \$400 loss – that way, I get four times the opportunity to make a big win without any additional risk.

## Capture a bigger trend

One of the most difficult aspects of trading is giving back open profits – that is, giving back unrealised profits as the markets move against you. However, the more you can withstand it, the larger the trend you will be able to capture and, in turn, the greater the average win will be for an initial limited risk. The fear of losing unrealised profits – and so selling too soon – is possibly the biggest failing of new traders.

No-one knows if prices will move up or down tomorrow. Remember the simulated test we did earlier where we bought each day on the open and exited at the close? The win rate was 53 per cent, which proves that on any given day the market might finish up or it might finish down. If this is extrapolated out to when you're riding a position, on any given day the chances are that the position will either keep going in your favour or it won't. Therefore, to be scared of giving back open profits makes no sense – you're only thinking about one scenario out of a possible two. Thinking like this is not only illogical, it's emotional. It suggests you are placing more emphasis on the current profit than the potential profit if the trend continues in your favour. Concentrate on the next 1000 trades, not just the immediate one.

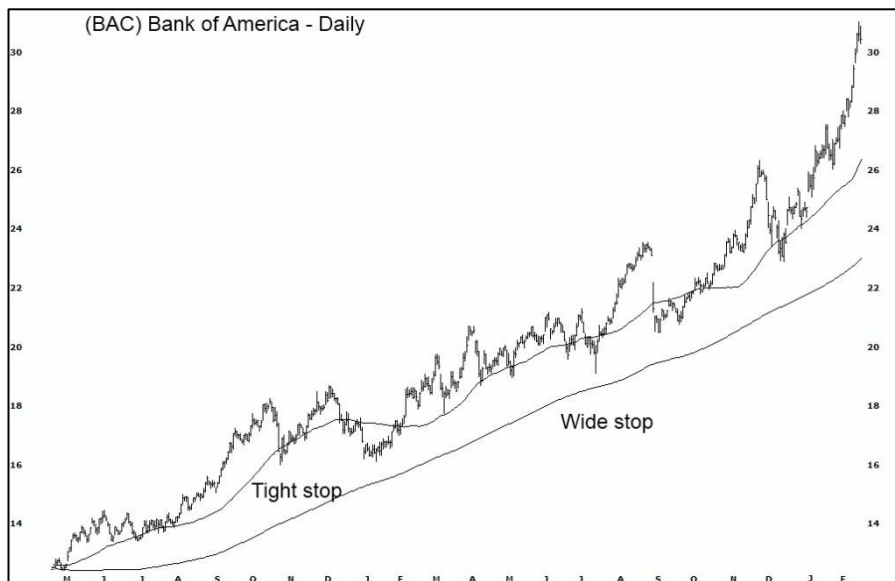
To take advantage of the trend while also protecting profits, we can apply the first two rules above – a low-risk entry and the breakeven stop – and then use a variety of trailing stop techniques. A trailing stop enables you to move your stop up behind the market price and so protect profits as the market moves in your favour. A trailing stop using a moving average is what I find the simplest and most robust. A wide trailing stop will enable substantially more trend to be captured; however, if this type of stop is used, more short-term market noise needs to be withstood and it may mean giving back large open profits.



## Length of the moving average trailing stop

My experience suggests most people can withstand a moving average (MA) style trailing stop out to about 20 to 30 days in length. Beyond that, many people find it becomes difficult to remain focused on the trend because the open profits start to play a role. I use a 50-day MA trailing stop for some of my equities and futures models, and this can enable trends of beyond a year to be caught. Figure 2.1 shows the difference between using a wide stop and a tight stop. Markets naturally ebb and flow, so if you wish to capture large moves, the stop needs to be wide enough to allow these flows to occur. A tight stop will not allow open profits to be given back, but nor will it allow a larger trend to be ridden. If you are a serious active investor, you may use up to a 200-day MA trailing stop to capture sustained trends.

**Figure 2.1: A sustained trend can be ridden with a wide stop**



A computer can test the above theory. If we use a basic moving average breakout system where the entry/trailing stop interval is tested from 10

days to 150 days, as per table 2:1, it is possible to identify some important traits. The system was tested on a major stock over a 20-year period with a \$10000 investment used per trade. As the number of days used for the MA trailing stop increases (and therefore the profit potential compared to the initial risk increases), the win/loss ratio also increases from 3.08 to 14.87 and the average trade moves from \$194 to \$2221. The net profit moves from \$25998 to a whopping \$73308. Also note that the maximum drawdown remains relatively static and, again, that the profit factor increases. This example is not a one-off. Such trends within statistics occur across all strategies and time frames therein.

**Table 2.1: Moving Average breakout system**

<b>Length</b>	<b>Net Profit and Loss</b>	<b>No. of trades</b>	<b>Win %</b>	<b>Avg. win/loss</b>	<b>Avg. trade</b>	<b>Max. drawdown</b>	<b>Profit Factor</b>
10	25,998.60	134	38	3.08	194.02	-4589.02	1.89
20	54,624.54	92	35	6.06	593.75	-4589.12	3.39
30	60,225.46	67	49	5.18	898.89	-3259.00	5.02
40	52,940.99	64	40	5.62	827.2	-3828.68	3.85
50	46,147.82	61	39	5.01	756.52	-3213.69	3.25
60	43,772.43	59	35	5.87	741.91	-5083.92	3.24
70	54,391.86	52	30	9.67	1046.0	-4711.42	4.3
80	54,353.01	50	30	9.89	1087.06	-5432.54	4.24
90	53,819.65	43	37	8.36	1251.62	-5651.28	4.95
100	67,501.87	37	32	14.35	1824.37	-5085.54	6.89
110	61,651.54	37	32	11.94	1666.26	-5703.84	5.73
120	62,469.93	36	25	16.93	1735.28	-4734.19	5.64
130	59,704.24	31	32	11.85	1925.94	-4071.72	5.64
140	63,442.92	36	27	14.2	1762.3	-4544.20	5.46
150	73,308.76	33	30	14.87	2221.48	-4544.58	6.46

Let's think about this for a moment. Imagine if you made 50 trades and out of those 30 were winners and 20 were losers (representing 60 per cent

accuracy). Each win was 1.5 times the loss. If you stake \$1 on each trade, the net profit after 50 trades would be \$25. The profit factor would be 2.25.

Imagine you made the same 50 trades, but this time you had just 20 winners with 30 losers (40 per cent accuracy). Remember that the win/loss ratio is directly related to the accuracy. Therefore, it is highly unlikely that your win/loss ratio would be 1.5 times in this example. Let's assume it will be three times, which is more realistic, even for shorter term methods. In this situation, the net profit would be \$30, 20 per cent higher than the first situation, even though accuracy has dropped.

As at the time of writing, I have entered trades with win/loss ratios exceeding four times. This is where the money is made. Imagine if a system made four times the initial risk and was right 40 per cent of the time. The net profit would be \$50, 100 per cent higher than the first example through being right less often! The equation is simple – most important is how much you win when you win, and how much you lose when you lose. Forget right or wrong. Think about expanding that profit compared to the initial risk taken. That's what it's all about. That's all that counts.

You can be assured of one fact regarding trailing stops and taking profits – you will never make a large profit by taking small profits. Allow yourself to run a minor profit into a large one. Don't think about the money – think about the process. Forget everything else; just try to get that win/loss ratio out as far as you can. If you can do it once, you will feel more confident the second time around, and you'll also start to realise the power of capturing a sustained trend.

### **Pyramid the position**

When doing something right, do more of it. When doing something wrong, do less of it.

The above is one of my favourite mantras, and this is exactly the process that pyramiding follows. By definition, pyramiding is simply the process of adding to an existing position as the market moves in your favour. Pyramiding will expand the win/loss ratio because when a loss is incurred, it is on a smaller position; when an extended trend occurs, the position is added to so the trend is ridden with a larger position.

Say you place an order to buy ABC stock at \$12.00 and the protective stop, according to your rules, is to be placed at \$11.60. You would normally trade 1000 shares. In this situation, there can be only two outcomes:

- Scenario one – you get stopped out at the protective stop level at \$11.60.
- Scenario two – you were able to exit the position using your trailing stop at a profit.

In order to analyse these two scenarios, we'll assume that in scenario two the trade was exited at \$13.50.

Let's first review the outcome with normal trading – that is, without any pyramiding applied:

- Scenario one – if you were stopped out in normal circumstances, your loss would be \$400 ( $1000 \times 0.40$ ).
- Scenario two – exiting the trade using the trailing stop allows a profit of \$1500 ( $1000 \times 1.5$ ).
- Resultant win/loss ratio = 3.75.

Now let's review the outcome if pyramiding is used. When we pyramid, we buy a smaller initial position and only add to it when prices move in our favour. Let's assume that we'll divide the position into four parts, where we buy 250 shares at 10¢ increments as the price moves up:

- Scenario one – buy 250 at \$12.00; stopped out at \$11.60 for \$100 loss.
- Scenario two – buy 250 at \$12.00; buy 250 at \$12.10 and move initial stop to \$11.70; buy 250 at \$12.20 and move initial stop to \$11.80; buy 250 at \$12.30 and move initial stop to \$11.90.
- Exit position at \$13.50, as per trailing stop, for profit of \$1350.
- Resultant win/loss ratio = 13.50.

You can clearly see how pyramiding can skew the numbers in your favour – in the example above, the win/loss ratio moves from 3.75 out to 13.50. However, this is the best-case scenario, where the market moves in your favour without retracing. You should be prepared for the worst-case scenario.

In the above example, each time the position was added to, the initial stop was also moved up. This is imperative in order to keep the total risk aligned. The worst-case scenario will occur when we add the last position, in this case at \$12.30, and then the market reverses and stops us out. The problem is that the stop is still at \$11.90, which would result in a loss of \$250. You may be fine with this, but looking deeper the initial position sizing was aimed at losing \$100, not \$250, so the win/loss ratio is reduced to 5.4.

Also to be taken into account is the extra brokerage incurred through multiple transactions when pyramiding – although, when a strong trend is ridden the resultant profitability, because of the win/loss ratio, will ensure brokerage looks after itself.

There are various ways to skew the numbers in your favour. Ultimately, it's a matter of decreasing the amount of each loss and increasing the amount of each win – and nothing more complex than that. When you place a trade, it is important to think about the way you can reduce the risk. You cannot control the profits – only the market can do that.

However, you can control your losses and, therefore, you can control your average loss. Be pro-active in your trade management. If you can get the average win/loss ratio out beyond 4:1, you will be a very, very successful trader – regardless of the tools you use.

## CHAPTER 3 - ENTRIES, FREQUENCY AND MIND-SET.

Chapter 2 discussed the primary ingredient of profitable trading – getting that average win/loss ratio as large as possible. To do this, the first step is to limit the initial losses as much as possible. The initial loss is like a business expense. It's a necessary risk – you cannot trade without some type of initial risk. One way to get the win/loss ratio out as far as possible is to just trade low-risk entries. This concept is the cornerstone of my discretionary trading.

### Selecting the low-risk trades

Several years ago, I tried a straightforward computer test using a basic break-out model. (As you may have gathered, I like to test my theories using an unbiased tool such as a computer. I have learnt never to make assumptions when it comes to risking money.) The question I had on this occasion was, 'Should I take every entry that comes along, or wait just for lower risk entries?' I initially told the computer to take every buy signal between the entry point and protective stop, regardless of risk size. If this distance created too much risk, though, I told the computer to still take the trade but override the technical protective stop with a hard dollar stop (that is, a stop derived by a dollar amount rather than some other criterion such as a chart level). The results are recorded in table 3.1 and labelled 'Raw'.

Next I told the computer to take the same signals but only if the distance between the entry point and protective stop was within my specified risk tolerance. In other words, if the distance from the entry point to the protective stop wasn't within my risk tolerance (and therefore could not be considered a low-risk trade), don't just use a hard dollar stop, don't even take the trade at all. The results from applying this filter are also shown in table 3.1.



**Table 3.1: all trades ('Raw') versus low-risk trades ('Filtered')**

	<b>Raw</b>	<b>Filtered</b>	<b>Change</b>
<b>Net Profit and Loss (\$)</b>	25918	29878	+15%
<b>Max. drawdown</b>	-3082	-2990	-3%
<b>Profit factor</b>	3.09	4.71	+52%
<b>No. of trades</b>	51	41	-19%
<b>% win</b>	49%	59%	+20%
<b>Average win</b>	508	728	+43%

As can be seen from table 3.1, it was better, in every category, to be more selective with trades – that is, to only take the low-risk trades and stand aside from the higher risk trades altogether. Net profitability went up by 15 per cent. The losing equity streak or maximum drawdown decreased by 3 per cent. The profit factor (dollars won divided by dollars lost) increased by a whopping 52 per cent. Remember that this statistic measures 'comfort' level, so we can also assume that taking lower risk trades results in a more comfortable trading experience.

The actual number of trades I had to make declined by 19 per cent (less money paid to the broker is always good) and the amount of times I was profitable also increased by 20 per cent – not that this is important. The average win increased by 43 per cent, which can only mean the average loss must have decreased.

### **Tightening the protective stop**

What exactly does a low-risk entry look like? Take a look at figure 3.1.

**Figure 3.1: large range and ascending triangle in XYZ Corp**

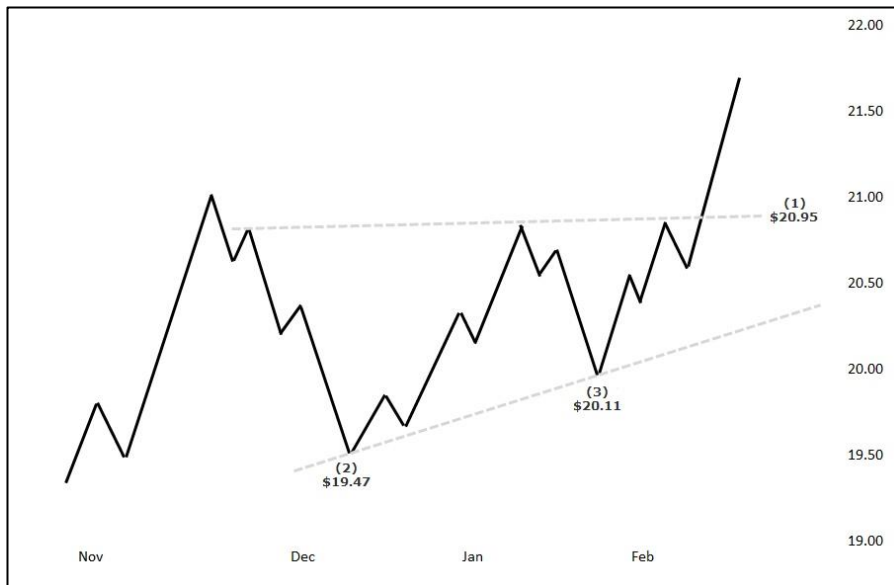


Figure 3.1 shows a clear sideways trading range between \$19.47 and \$20.95. Prior to this, the trend was conclusively up, so usually the safest trade is to buy the breakout if prices pass through the high – in this case, at \$20.95, marked as (1) – and assume the trend should continue. After entering, there are two obvious technical points to place the protective stop.

The first point is below the bottom of the range – in this case, at \$19.47, marked as (2). The risk here is \$1.48 ( $\$20.95 - \$19.47$ ). If you were to risk \$2000 of your capital to buy XYZ Corp at this price, you could buy 1351 shares ( $\$2000 \div \$1.48$ ). Therefore, if you bought the breakout and then got stopped out at \$19.47, you'd lose \$2000.

The next possibility for the protective stop is the minor pivot point – in this case, at \$20.11, marked as (3). The trend here could be seen as an ascending triangle pattern instead of the sideways range. Using this stop

would make the risk \$0.84 ( $\$20.95 - \$20.11$ ) should you be stopped out. Using the same risk allocation of \$2000 of capital, you could now buy 2380 shares.

This is textbook stuff, so let's just stop for a moment and assess the obvious. After entry we will have absolutely no idea whether this trade will turn out to be a winner or a loser. Regardless of how smart you think you are, it's impossible to know the outcome. All we can be certain of is that if we follow our plan and get stopped out we'll lose \$2000, hence the importance of protective stop loss orders and executing them without fail.

The amount of dollars risked is the same in both scenarios – what is different is the size of each position. If this trade is a winner, which position do you think will make more money? Of course, position two, with the larger holding of 2380 shares, will generate more profits – even though the risk for the two positions was the same. All we've done is tighten the stop to allow a larger position size (2380 shares versus 1351) to be placed.

Let's assume we exit the trade at \$23.75. Position one will make a profit of \$3782 ( $\$2.80 \times 1351$  shares). The risk/reward or the win/loss ratio in this case would be 1.89 ( $\$3782 \div \$2000$ ). Position two will show a profit of \$6664 ( $\$2.80 \times 2380$ ) and therefore will have a win/ loss ratio of 3.33 ( $\$6664 \div \$2000$ ).

You can see that we have effectively skewed the numbers in our favour by simply tightening the stop. Imagine if we could have cut the risk on position two by 50 per cent again. It's basic maths, basic expectancy, and it is that simple (and removes the psychological impact). Remember, though, that the tighter the stop, the greater the chances of getting stopped out. Your immediate reaction here might be to focus more on reducing the chances of being stopped out. This means you are more focused on trying to be right rather than concentrating on the potential outcome if the trade is a winner.

It's essential to remove this ingrained urge (in fact, remove any urge that pops immediately into your head – they're usually wrong). As already discussed, over time the higher win/loss ratio will result in greater profitability and this is more important than trying to vie for a higher win percentage. Let's look at the same trend shown in figure 3.1, but in a different light.

**Figure 3.2: small range and ascending triangle in XYZ Corp**

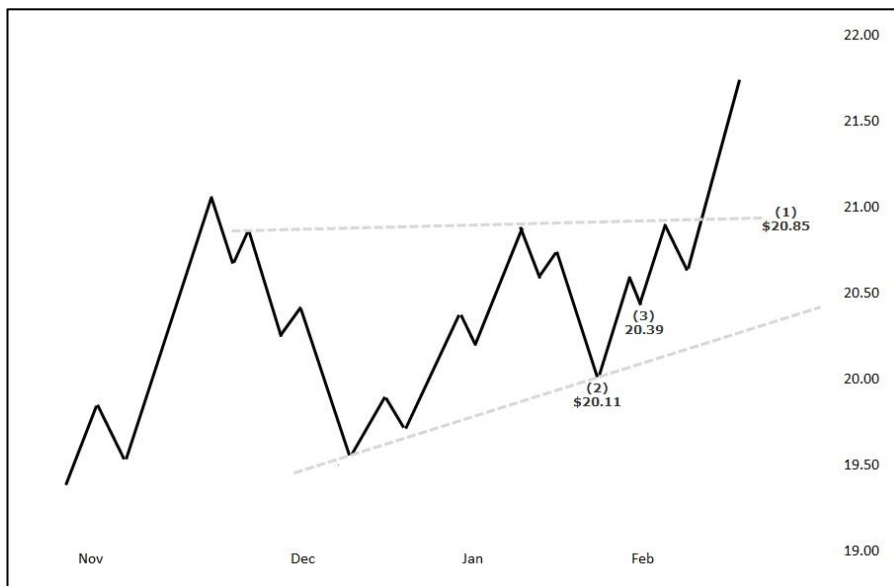


Figure 3.2 shows the exact same pattern, yet on a smaller scale. What will be the outcome here using the same scenarios? Obviously, the position sizes here will be even larger and therefore the win/loss ratio will also be larger, all for the exact same risk of \$2000. Let's run through the numbers just to make sure.

We've bought on the breakout at point (1) at \$20.85. We can place the protective stop loss at \$20.11, and therefore buy 2702 shares ( $\$2000 \div$

\$0.74), or we can trade the smaller ascending triangle and place a tighter stop at \$20.39. This would enable us to buy 4347 shares ( $\$2000 \div \$0.46$ ).

Assume again we are able to exit at \$23.75. The first scenario above shows a profit of \$7835 with a win/loss ratio of 3.9 ( $\$7835 \div \$2000$ ). The second scenario shows a profit of \$12606 with a win/loss ratio of 6.3 ( $\$12606 \div \$2000$ ).

Now we have four different scenarios with just two things in common. The first commonality is we could never have known ahead of time that the trade was going to be successful or that we'd be able to exit at \$23.75. That's in the hands of the gods (although not in the \$20000-course vendor's opinion), but we did ignore the 'right/wrong' factor. Secondly, the loss was always going to be the same on each of the four trades – we were going to lose \$2000 regardless of whether any of the set-ups were wrong. These are the only two similar characteristics in all four scenarios.

The differences lie in the tightness of the protective stop, which in turn leads to a larger position size. If, and only if, the trade is a winner, we'll always be better off with a larger position size on the trade. Go back to figure 1.1 and see where these win/loss ratios lie on the expectancy curve and note how we've managed to move deeper into the profitable zone. A win/loss ratio of 6.3 doesn't even register on that curve. With this ratio, you'd still be a winner if you just won 14 per cent of the time! I'd like to think that I'm a little better than 14 per cent.

### **Getting closer to the risk-free trade**

It doesn't matter what we do, as long as the initial risk is as low as we can make it. To have no risk would be ideal, but that just cannot be the case when trading or investing. We can certainly help our cause, however, by starting the trade with a low-risk entry and then quickly following up by moving the stop to breakeven or at least reducing the initial risk by 50 per cent. That is the closest scenario we can have to a risk-free trade, and this

is exactly how I operate. It's a remarkably simple concept and one that will work anytime, anywhere.

Would it have mattered to the bottom line if we'd used a slow stochastic to enter these trades? No. Would it have mattered to the bottom line if we'd used volume as a filter? No. Would it have mattered to the bottom line if we'd used six different indicators? No. Nothing matters more than understanding the win/loss ratio mentality.

All these things, including the patterns I have used in the examples above, are merely tools to achieve our goal of making profits. The patterns themselves don't make you a successful trader. The moving average crossover doesn't make you a successful trader. The RSI, stochastic, ATR double-hitched backflip twist doesn't make you a successful trader. All these tools are just for your comfort – a way for you to feel in control and as such allow you to participate in the market. That's okay. We all need comfort when placing a trade, but is it really worth spending \$20000 (or some other ridiculous amount of money) to buy a trading course or attend a secret seminar? I've given you the "secret" here for free:

What makes you a successful trader is how much you win when you win and how much you lose when you lose. It won't matter what instrument you decide to use to trade. The same basic trading principle can be used in every market in the world – stocks, futures, commodities, ETF's and foreign exchange – and on every time frame from three-minute charts right through to weekly and monthly charts. The same expectancy will be required anywhere in order to be profitable. A lot of people use my consulting services. They approach me to specifically learn how to trade FX or stocks or another type of instrument. They seem to think that there is a fundamental difference between trading one instrument and trading another. I can see no differences, except in terms of leverage, across markets. They all work the same. They all create the same opportunities of trend and consolidation and will therefore always present low-risk opportunities.

If you disagree, that's okay. But I challenge you to prove me wrong.

## **Trade frequency**

If the above discussion on risk-free entries can be found to be true, profitability can be further improved by trading with higher risk or simply trading more frequently. There are some caveats to this concept, however, which I'll outline shortly.

Firstly, let's start with trade frequency. If being profitable is about increasing the win/loss ratio and you now know how to do this, the next step is to increase profitability by increasing the number of trades we do in any given period of time. If you can achieve an average win/loss ratio of 4:1 and do 100 trades per year, you can then increase your overall profitability further by doing more trades per year. Pretty simple, although most people will attempt to increase profitability through the frustrating exercise of trying to increase the win rate. Just do more trading!

There are various, including some extreme, ways of doing this. For example, an extreme trade frequency would be a scalper who trades 30 times a day in one market. (Refer to my eBook [Every-Day Traders Australia](#) for real-life examples of this.) Scalpers find a very small edge and then exploit it as often as they can. They usually trade one volatile market that has high liquidity.

One step down from this extreme would be to look at short-term moves – say, two to five days in length – and trade, say, five to 10 different stocks at once (more if you have the time). Stepping down even further would be to trade out to 20 to 30 days, as I attempt to do, and track more stocks to increase trade frequency. Lastly, you could capture much longer term trends and follow up to 300 stocks.

The advent of margin lending and, more recently, CFDs means you are no longer restricted by capital outlay. As such, trade frequency can be

increased quite dramatically. Obviously the use of leverage is a double-edged sword so one needs to practise sound risk management.

### **Caveats on increasing trade frequency**

Trade frequency is important, but the caveats are:

- The higher the trade frequency, the higher the associated costs such as brokerage, data collection and time. Of course, the larger your win/loss ratio, the better your net profitability will become after these costs are deducted.
- The shorter the time frame, the less instruments you can physically monitor. Conversely, the longer the time frame, the more instruments you need to watch.

Increasing trade frequency helps increase profitability if you have a positive expectancy method for extracting profits from the market. Throwing darts or tossing a coin may theoretically achieve the same goal but they certainly aren't psychologically appropriate for most people. While I have made my arguments in the last section seem rather simplistic, what can't be oversimplified is the importance of having the right psychological mind-set to trade profitably and consistently.

### **My thoughts on mind-set**

While an in-depth analysis of the psychology of a top trader is beyond the scope of this eBook, it is another factor that is paramount to success, so you should take the time to study it more. While the concepts of the win/loss ratio and expectancy covered so far are all-important, it is possible that you won't be able to implement these concepts if you don't have the correct mind-set. Too many people come into trading with preconceived ideas of what is actually involved and one of the most destructive forces on a new trader is the emotional baggage brought to the table. It is, however, extremely difficult to teach the correct mind-set –



which is why I am only highlighting its importance here. While I have used a psychologist to help me with my own trading, it is not a quick-fix way to make you a more profitable trader. The correct mind-set develops over time through experience and is certainly not something that can be taught in a book, during a 60-minute consultation or through an expensive weekend retreat.

I realised a few years ago that my line of thinking is vastly different to that of many people I came into contact with. Previously, I had just assumed everyone thought of risk and expectancy in the same way I did. While my concern for risk or having a losing trade was completely non-existent, or perhaps unconscious, it appeared to be a major dilemma for most people. It's not that it had never occurred to me that a trade could be a loser. I was very aware of the possibility of loss and also knew all too well my ability to string many losers together. However, I don't consciously get concerned about losing money in the same way most people do. Perhaps after 26 years of trading and seeing everything from the 1987 crash to the implosion of the GFC, it has become so second nature that now the thought of losing money sits deep inside my unconscious and has no bearing on my day-to-day decision making.

I view trading as simply entering a position and then defending the risk involved with that position. Defending the risk is about finding low-risk set-ups, moving the protective stop to breakeven as soon as it is appropriate and trailing the stop as the trend develops. In that mind-set, I simply don't think about the potential of a loss and I am completely free to accept what the market gives me each day. Unfortunately, this is very different to what passes through the minds of most people when they get into a trade. They tend to look for confirmation by reading a public bulletin board or even by unconsciously only accepting information that agrees with their position and rejecting information that conflicts with their position.

## **The market is not the enemy**

Other people approach trading as if they are in battle and the market is the opposition. The market is not the enemy. It cannot hurt you. You can hurt you, but the market simply facilitates the buying and selling of shares and as such provides feedback via its prices. What you do with that feedback is up to you. If you don't use a protective stop, if you use too much leverage, if you do not allow the trends to be ridden, if you bog yourself down in too much analysis, you will lose money.

More often than not, most people blame the market for their losses and so create a 'me versus them' scenario. Many people have attempted to explain to me how the market is 'rigged' or how big players make it unfair for smaller players or how the broker issued bad advice. Ultimately, it is your decision to play the game and therefore your responsibility to ensure that you know what you're doing. You wouldn't attempt to fly an aeroplane without first receiving instruction and extensive training. Yet people who have no idea about how to be profitable in the market invest their hard-earned money in an arena that contains professionals who dedicate their lives to making a living from it.

## **Trading is not a hobby**

Trading is a serious occupation; it is not a hobby. I do endless research on anything that might add to my trading and/or investing repertoire. In this day and age of leverage, we have the ability to extend funds across various strategies and we don't have to be overly exposed to risk in order to do so. Too many traders stick to one single strategy or one instrument. While there is nothing inherently wrong with this, it limits their understanding of the markets and therefore their growth as traders.

Learn to be open to anything that comes along. I readily tinker with strategies or suggestions that I read about on forums, FaceBook or in books. On most occasions, the theory gets dispelled rather quickly;

however, I have also found some gems. Because of this openness to ideas, I have been able to build on existing strategies and add new ones. This not only adds to my bottom line but also to my confidence in my ability to understand what is valid and what is garbage. I am able to very quickly decipher the difference between a good trader and an amateur just by listening to the way each talks and what they talk about.

To get you started on the road to developing the correct mind-set, I would recommend [Trading in the Zone by Mark Douglas](#). While it may take a few reads to comprehend, it should help explain the angle from which I approach trading. Your psychological fortitude plays an important role in all aspects of your trading and investing, so ensure you work on it. Your emotions will do everything they can to keep you in a losing position and get you out of a winning position.

You are your worst own enemy and, generally, what you feel is the correct thing to do, is the wrong thing to do. Taking a quick profit may feel right but it skews your ability to be a solid long-term winner.

Quite simply, you need to run a trend, not cut it short. You need to cut a loss as quickly as possible, not hope it will come good. I accept that you must find a style that suits you, that is comfortable and that you can replicate in the future. But going around and around will only add to your inability to make a decision and be a detriment to your bottom line.

## CHAPTER 4 - RISK MANAGEMENT

No trading text would be complete without discussing risk management. It never ceases to amaze me how many people still do not practise appropriate risk management. The topic of risk management, or position sizing as it's sometimes known, is paramount to your longevity as a trader. The bottom line really comes down to this - the more you bet on a single trade, the more volatile your returns will become. The more volatile your account balance is, the greater the emotional roller-coaster you will ride. Experiencing too many ups and downs, especially large ups and downs, is not really appropriate for a career trader. It will create an unsettling environment in both your professional and personal life, and it may also adversely affect your health. It is therefore important to manage your exposure to risk and so create some trading and health longevity for yourself.

One of the simplest ways of managing risk is to divide your trading capital into equal parts. While this may not be the best way, it is certainly better than no way. I'll get onto what I think is the best way shortly, but for now let's just use the following simple analogy.

Imagine you are a professional golfer and compete on the pro tour. The tour events are made up of four days of golf and on each of those days you play 18 holes. In total you will play 72 holes. As much as you'd like to play every hole perfectly, you know that is impossible. Therefore, while you simply attempt to play as best you can, the goal that is really in the back of your mind is not to have an extremely bad hole that destroys the entire round or tournament. In essence, you are managing your score by not doing anything completely stupid, like hitting bold shots or taking on too many risky shots. You attempt to avoid bunkers, play away from water hazards and out-of-bounds areas, and do your best to control the ball and

keep it on the fairway at all times. You realise that if you fail to keep the ball on the fairway, you will be penalised harshly for the oversight.

When playing the tournaments you are also aware of external factors that may play a part in your decisions. Factors such as the wind, recent rain or dryness, angle of the fairways, speed of the greens and even the competition can have an adverse impact on your game. There are also external factors such as sports critics who may influence your line of thinking.

When faced with all these factors good golfers will simply take one shot at a time. They micro-manage their game by not thinking about the absolute end result. They simply play the shot they have in front of them. They play for safety and to stay in the game for the long haul. They play each shot so as to be in some type of contention at the end of the tournament, as you can't win if you're not in contention.

If we apply this analogy to trading, hitting a bad shot into a water hazard and being penalised is like taking a much larger loss than average. We know that not every trade will be a winner, just like a pro golfer will know that not every shot will be perfect. But we trade to stay in play and by that I mean we only allow a small amount of risk on each trade. When we do have some bad trades, and they are bound to occur, they will not disrupt the end game, which is to have enough capital to keep on trading.

So think like a pro golfer and divide your capital into 72 equal parts – as if each trade you make is similar to each hole a pro golfer plays in a four-day tournament. A single hole cannot be responsible for winning the tournament, but a very bad hole can certainly make it impossible to win. Good traders understand that some trades will be losers, some trades will be winners and some will be great wins, but they do their best to ensure that a single trade or even a string of losing trades will not destroy their account balances.

## The probable length of a losing streak

As long as you have divided your capital into 72 equal parts and placed a protective stop, a single trade on its own is rarely destructive. However, when a string of losing trades occurs it can be a cause for concern - both financially and emotionally. You might think that if you win about 50 per cent of the time, a winning trade would surely follow each losing trade. Nothing could be further from the truth. I remember waiting for a plane in Hong Kong several years ago and being bored. I started tossing a coin and counting how often a streak of heads or tails would occur - after all, a coin only has two sides and so there is a fifty-fifty chance of a head or a tail coming up. Mathematically I knew the outcome, but I wanted to see it for myself. Sure enough, on quite a few occasions I was able to toss a run of nine heads or tails. Runs of five were extremely common.

If you were able to mathematically ascertain the probable length of a losing streak you could better prepare yourself for its potential impact – financially and emotionally - when it does occur. Using an Excel spreadsheet and our win percentage we can make some assumptions as to what is possible.

For the purposes of the exercise, I'll use my humble pie example, where I expect to win around 50 per cent of the time. In cell A1 of the Excel spreadsheet, enter that 50 per cent expectancy as 50. In cell A2, enter how many trades you would like to test the theory on. It's best to be conservative, so a large number such as 10000 is better than 100. Enter 10000 into cell A2. In cell A3, enter the following formula:

$$=ROUND(LN(A2)/-LN((1-(A1/100))),0)$$

Once you have entered this formula, '13' automatically appears in cell A3. What this means is that after 10000 trades with an average win rate of 50 per cent, there is a chance that you could sustain 13 consecutive losers in

a row. It's always best to err further on the side of caution and expect that perhaps even worse than this could occur.

This gives us some valuable information, both mentally and financially. I say mentally because most people go looking for another method after about five consecutive losers. If you intimately understand what is possible in trading, both good and bad, you will be more inclined to see a losing streak through. Knowing what is possible also allows you to consider the emotional consequences that can pop up when your capital starts being depleted by a string of losing trades. What will your spouse say? Will you tell your friends? How will your mood be at work the next day? Will you have a few extra drinks at the pub that night? If you prepare yourself for 13 (or more) losses in a row, when the inevitable losing streak does come along, you'll be ready and know that it is just part and parcel of trading.

But this chapter is about risk not psychology, so let's concentrate on the financial side of the equation.

### **Capital allocation**

There is a well-known trading course sold globally that has been around for 20 or more years. The operators of this course suggest you should risk 10 per cent of your initial account equity on each trade. Is this wise? I say no. What happens if the first five trades are losses? They, obviously, will tell you that it won't happen, but what if you've just paid \$1000 for this great trading course and you lose 50 per cent of your capital in just five trades? You'd be devastated. I say I am no better than random, or a 50 per cent win rate. Therefore, according to our spread sheet calculations, there is a possibility I could have 13 losses in a row. In light of this, I cannot bet 10 per cent of my account on each trade because there is a chance I will lose more than what is in my account. Even if I bet 5 per cent on each trade, after 13 losing trades my account balance would have declined by 65 per cent. Is that acceptable to you? It's not to me. The students of the

above course would have to achieve a minimum win rate of 60 per cent – which could still potentially produce 10 losers in a row, meaning there was still a chance of losing 100 per cent of the account. I never want to be in that position or even close to that position. If you are risking 10 per cent of your initial equity with every trade, an account decline of less than 50 per cent will only occur if your win rate exceeds 82 per cent.

There are not too many traders in the world that can do that. If we use our golfing analogy and divide our capital into 72 equal parts, we're risking just 1.39 per cent of our equity on each trade. (Remember – the amount risked is the amount lost if you are stopped out of a trade, not the total amount invested.) This means that 13 consecutive losers would cause a total loss of just 18 per cent. Is that acceptable to you? It certainly is to me. After making this basic calculation, we can adjust our risk on each trade to suit our own risk profile. Each person has a different risk appetite. Some people are more than happy to lose 50 per cent of their account balance. Others shudder at the thought of losing 20 per cent. Some of you may think that such a losing streak will not happen to you. Maybe not, but do you want to put yourself in that position? I'd like to be a fly on the wall as you explain to your spouse why you've lost 65 per cent of your capital in the first few weeks of your new trading career. Your friends and family will call you a gambler – and, unfortunately, if you bet too much on a single trade, that's exactly what you are.

### **Advanced asset allocation**

This basic concept of splitting your capital into equal parts is adequate for a beginner or intermediate trader. If you wish to take the next step or you are quite conservative, the best method I have used is fixed fractional position sizing.

Fixed fractional (FF) also uses the concept of percentage risk per position but is calculated from the account balance on an on-going basis rather than the initial trading account balance. It is also very useful because it



naturally compounds your account when you're profitable, yet defends it when you are having a losing streak. When using this method, a percentage risk of your account is chosen for each trade. As shown above, the higher the risk, the more you'll lose (or win) and the more volatile your account will become.

Assume your starting account balance is \$10000 and you risk 5 per cent on each trade. The first trade will have a risk of \$500 ( $10000 \times 0.05$ ). If this trade is a loser, the second trade will have a risk of \$475 ( $\$9500 \times 0.05$ ). If that trade is also a loser, the third trade will have a risk of \$451. Each successive loss will make the capital go lower and therefore the percentage risk of that capital will also decrease.

Table 4.1 shows the equity decline for various risk percentages after 20 losers in a row.

**Table 4.1: varying account balances after 20 consecutive losers**

Balanc e	5%	Balanc e	4%	Balanc e	3%	Balanc e	2%	Balanc e	1%
10000		10000		10000		10000		10000	
9500	500	9600	400	9700	300	9800	200	9900	100
9025	475	9216	384	9409	291	9604	196	9801	99
8574	451	8847	369	9127	282	9412	192	9703	98
8145	429	8493	354	8853	274	9224	188	9606	97

7738	40 7	8154	34 0	8587	26 6	9039	18 4	9510	96
7351	38 7	7828	42 6	8330	25 8	8858	18 1	9415	95
6983	36 8	7514	31 3	8080	25 0	8681	17 7	9321	94
6634	34 9	7214	30 1	7837	24 2	8508	17 4	9227	93
6302	33 2	6925	28 9	7602	23 5	8337	17 0	9135	92
5987	31 5	6648	27 7	7374	22 8	8171	16 7	9044	91
5688	29 9	6382	26 6	7153	22 1	8007	16 3	8953	90
5404	28 4	6127	25 5	6938	21 5	7847	16 0	8864	90
5133	27 0	5882	24 5	6730	20 8	7690	15 7	8775	89
4877	25 7	5647	23 5	6528	20 2	7536	15 4	8687	88
4633	24 4	5421	22 6	6333	19 6	7386	15 1	8601	87
4401	23 2	5204	21 7	6143	19 0	7238	14 8	8515	86
4181	22 0	4996	20 8	5958	18 4	7093	14 5	8429	85

3972	20 9	4796	20 0	5780	17 9	6951	14 2	8345	84
3774	19 9	4604	19 2	5606	17 3	6812	13 9	8262	83
3585	18 9	4420	18 4	5438	16 8	6676	13 6	8179	83
3285	–	4420	–	5438	–	6673	–	8179	–

As can be seen from table 4.1, several things occur when fixed fractional position sizing is used. Firstly, the ending balances after 20 consecutive losing trades differ considerably depending on how much is risked on each trade. While the opposite is also true, my concern here is one of risk management and creating longevity and this should not be confused with trading for maximum profit. The next factor is that the actual dollar amount risked per trade decreases and will continue to do so to the point that it becomes so small you may not be able to place a trade.

Natural compounding will also occur, as shown in table 4.2. Here the results are shown for 20 consecutive winners with varying risk percentages. For the purposes of the table, I have assumed that only as much as was risked was won in each trade. Of course, in reality, profits for a winning trade are potentially limitless.

**Table 4.2: varying account balances after 20 consecutive winners**

Balance	5%	Balance	4%	Balance	3%	Balance	2%	Balance	1%
10000		10000		10000		10000		10000	
10500	500	10400	400	10300	300	10200	200	10100	100
11025	525	10816	416	10609	309	10404	204	10201	101

11576	551	11249	433	10927	318	10612	208	10303	102
12155	579	11699	450	11255	328	10824	212	10406	103
12763	608	12167	468	11593	338	11041	216	10510	104
13401	638	12653	487	11941	348	11262	221	10615	105
14071	670	13159	506	12299	358	11487	225	10721	106
14775	704	13686	526	12668	369	11717	230	10829	107
15513	739	14233	547	13048	380	11951	234	10937	108
16289	776	14802	569	13439	391	12190	239	11046	109
17103	814	15395	592	13842	403	12434	244	11157	110
17959	855	16010	616	14258	415	12682	249	11268	112
18856	898	16651	640	14685	428	12936	254	11381	113
19799	943	17317	666	15126	441	13195	259	11495	114
20789	990	18009	693	15580	454	13459	264	11610	115
21829	1039	18730	720	16047	467	13728	269	11726	116
22920	1091	19479	749	16528	481	14002	275	11843	117
24066	1146	20258	779	17024	496	14282	280	11961	118
25270	1203	21068	810	17535	511	14568	286	12081	120
26533	1263	21911	843	18061	526	14859	291	12202	121
26533		21911		18061		14859		12202	

Clearly, there are two sides to the risk equation but the following three factors must be considered:

- 1 If you lose all your capital you will not be able to trade.
- 2 The more you lose, the harder it becomes mentally to continue to trade.
- 3 The only thing you can control is how much you lose.

Table 4.3 shows how many consecutive trades it will take to lose 50 per cent of the account balance, which seems to be a common benchmark for new traders, based on percentage risked per trade.

**Table 4.3: number of losing trades before a 50 per cent equity decline**

<b>Risk per trade</b>	<b>No. of trades for a 50% equity decline</b>
1%	69
2%	35
3%	23
4%	17
5%	14

Each person will have a different risk profile, so it's now just a balancing act to find your own risk/reward point and stick to that as part of your trading plan. I use 2 per cent risk per trade as a guide but a private trader could go to around 3 per cent. As a rule of thumb, if you start to move toward 5 per cent, you're looking for trouble and possibly being too aggressive with the risk.

### **Risk management using leverage**

In the past, the use of leverage was confined to exchange traded options (ETOs), warrants or futures contracts however CFDs are now a popular product. CFDs are highly leveraged products and must be traded and managed differently to normal shares. With normal shares, the amount that may be lost is usually restricted to the capital outlaid. With CFDs,

though, the capital outlay required is minimal in comparison to the total value of the investment. This tends to make people think they should use all the capital available to them, just like when they trade normal shares. This is plain wrong and can be fraught with danger.

Let's highlight this point using a simple example that shows how leverage actually works. Say you have \$20000 to trade with and you feel that the price XYZ Stock is trading at has potential to move higher. You wish to buy at \$8.85 and place a protective stop at \$8.50, or a risk of \$0.35. In terms of your account, you do not wish to lose more than \$500, so you can buy 1428 shares ( $500 \div 0.35$ ), which will mean an outlay of \$12637 ( $1428 \times \$8.85$ ). The problem is that \$12637 represents over 63 per cent of your available funds and investing this amount will mean you won't be able to take any more trades until this one has been completed. This can be construed as being 'riskier' than using leverage. It doesn't allow diversification, a prime ingredient in successful trading, especially during strong trending markets.

With CFDs, however, we only need to place a small amount of that \$12637 with the broker – indeed; the amount required may be as small as 5 to 10 per cent, depending on your provider. If it is 5 per cent, we need only place \$632 ( $\$12637 \times 0.05$ ) toward the trade, yet are still able to purchase the 1428 shares we need. If the trade is a loss, we will still lose \$500 of the \$20000 but we only needed to use \$632 to do it, rather than \$12637. Therefore, we have a lot more money available to us to take other trades and better apply our trading skills and reduce our risk through diversification.

However, it's this last point that can get people into trouble with leverage. Because they have only outlaid \$632, many people turn the equation inside out and do one of two things. Firstly, they may say that their account balance is really \$400000 ( $\$20000 \div 0.05$ ) because that's how much they can control with the leverage. Secondly, they may buy \$400000 worth of shares with their \$20000. When using leverage you should not

concern yourself with the underlying value of the stock you can control. After trading futures for the last 26 years, I can comfortably say that I have never known how much the underlying commodity I held was worth. Why? Apart from the fact that it is not relevant to you as a trader, it misconstrues your attitude to risk.

The only relevant point is how much your loss will be if you get stopped out and what percentage of your account balance it represents. This is the key. In other words, work backwards from the risk to the underlying value, not the reverse. I calculate the entry point, then the protective stop point. That is my risk. In the XYZ Stock example above, it was \$0.35. Then I divide that into the account risk – in my example, \$500. Then, and only then, will I know how many shares to buy and what outlay will be required. The risk always determines the amount of shares purchased and therefore the dollars outlaid. If you can start to think along these lines, you will be better placed to protect yourself from an extreme event that may destroy your capital and land you in serious financial trouble.

## **Level of diversification**

There is one more element to consider - how many positions to have on. Again, using a risk management tool we can correctly define this, rather than having to take a wild guess according to our confidence levels. When the stock market is moving along strongly, as it was from 2003 to 2007, the inclination is to get onto anything that moves. Because of the leverage available from CFDs, this can be a very dangerous proposition and one that must be controlled. The question is how many positions should you take? Five? Eight? More?

The answer lies in the amount of margin being used. In the previous XYZ Stock example, we put up \$632 in margin to cover the position. The \$632 represented 3.16 per cent of our \$20000 account. This percentage is known as the margin to equity ratio and, ideally, it should not exceed 30 per cent to 35 per cent to remain on the safe side. As prices move around and your protective stops are adjusted, this ratio will also move, so you should keep monitoring it in case it starts to creep beyond the 35 per cent level. If it starts to get toward 50 per cent, the exposure to the market should a nasty price reversal occur is starting to become dangerous.

Some CFD providers offer a guaranteed stop loss (GSL) facility that enables the margin to be lowered even further and again helps you reduce your risk. The GSL facility is a great idea when you are going against the major trend or shorting a very low-priced stock that may be a takeover target.

## **Capital restrictions with non-leveraged trading**

Before the days of CFDs, when the market was extremely bullish on the coat-tails of the US technology boom in the late 1990s, I came across the problem of having too many trading signals and not enough capital to trade them all. I needed some type of filter that allowed me to make an educated guess as to which of two stocks might be a better performer should they both be winners. I named the filter 'Bang for Buck' and it



eventually found its way into the Metastock user guide as well as several trading books.

Stock selection without leverage has one serious drawback – it means buying \$10000 of a \$80 stock is very different to buying \$10000 of a sub-\$10 stock, as capital usage in higher priced stocks is inefficient compared with lower priced stocks. A good exercise to prove this is to compare the average price range of a stock over the last 200 days with its current price.

For example, XYZ Corp has a 200-day average price range of \$0.32 with a current underlying price of approximately \$21.00. Using \$10000, you could buy 476 shares with an expected profit of \$152 per day ( $0.32 \times 476$ ). Compare this to ABC Corp, which has a 200-day average price range of \$0.035 with a current underlying price of \$0.44. This enables us to buy 22727 shares with the \$10000. Here the expected daily profit would be \$795 ( $0.035 \times 22727$ ). In this example, we'd get more 'bang for our buck' by buying ABC Corp and not XYZ Corp. So if I received a buy signal in ABC Corp and one in XYZ Corp, in theory I should be better off taking the ABC Corp trade and forgoing the XYZ Corp.

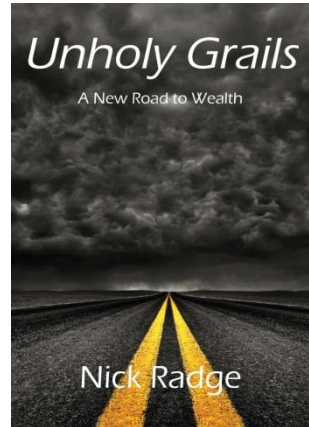
The Bang for Buck simply filters the relative volatility of the stock in comparison to its price.

To calculate the Bang for Buck filter, simply divide the amount in your trading account (say, \$10000) by the closing price of the stock on any given day. This number is then multiplied by the average range of the stock for the last 200 days. (The average range is the average distance the stock has moved from its high to low point each day over the last 200 days.) Divide this number by 100 to convert the result to dollars and cents, which in turn indicates the possible dollar return on any given day. The higher the expected profit versus required investment, the higher the profit potential meaning selecting higher ratios will enable stock selection with potential for movement and this is what we want.

## CONCLUSION AND FURTHER READING

I hope this eBook has provided you with the light-bulb information you need to take you trading to a higher and hopefully profitable level.

If you now require a decisive, proven and repeatable strategy I strongly recommend [\*Unholy Grails\*](#). In this eBook I outline the foundations and philosophies of active momentum investing, I fully disclosure eight strategies as well as provide proof-of-concept from real time trading results and interviews with successful traders.



*Unholy Grails* has sold globally and is available on [Kindle](#) or [iBooks](#).

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# APPENDIX A - STOPS AND LONG TRADING

The table below outlines the impact that different protective stop will have on results. The number of points used as the protective stop was tested between one and 50 and no other risk management factors were used. The computer was told to buy at every open and close at the end of each day – or get stopped out at the various protective stop-loss levels. The exercise shows that a tighter stop may have a smaller win percentage and profitability, but the associated risk declines at an even faster rate – making a tighter stop a better alternative than a wider stop.

<b>Stop points</b>	<b>Net Profit</b>	<b>Profit (%)</b>	<b>Avg. win/loss</b>	<b>Avg. trade</b>	<b>Max. Drawdown</b>	<b>Profit Factor</b>
<b>1</b>	94900	6	23.26	37.87	-14550	1.55
<b>2</b>	92400	10	10.99	36.87	-16825	1.28
<b>3</b>	100175	15	6.82	39.97	-26025	1.22
<b>4</b>	114575	19	4.92	45.72	-29425	1.20
<b>5</b>	135125	24	3.77	53.92	-27875	1.20
<b>6</b>	147375	27	3.09	58.81	-30225	1.19
<b>7</b>	128875	31	2.56	51.43	-35025	1.15
<b>8</b>	116075	34	2.16	46.32	-37825	1.12
<b>9</b>	98450	36	1.91	39.29	-42525	1.10
<b>10</b>	104150	38	1.74	41.56	-41200	1.10
<b>11</b>	106150	40	1.59	42.36	-42350	1.10

<b>12</b>	83000	42	1.46	33.12	-51650	1.07
<b>13</b>	71675	43	1.37	28.6	-46050	1.06
<b>14</b>	79175	45	1.29	31.59	-43325	1.07
<b>15</b>	71450	46	1.24	28.51	-45325	1.06
<b>16</b>	51275	46	1.19	20.46	-42775	1.04
<b>17</b>	41425	47	1.15	16.53	-50325	1.03
<b>18</b>	34575	47	1.12	13.8	-47125	1.03
<b>19</b>	47025	48	1.10	18.76	-51650	1.04
<b>20</b>	60850	49	1.09	24.28	-53825	1.05
<b>21</b>	52875	49	1.08	21.1	-54650	1.04
<b>22</b>	51600	49	1.07	20.59	-54400	1.04
<b>23</b>	46800	49	1.06	18.68	-54725	1.04
<b>24</b>	41775	49	1.05	16.67	-55675	1.03
<b>25</b>	43225	49	1.04	17.25	-57175	1.03
<b>26</b>	52200	49	1.04	20.83	-53850	1.04
<b>27</b>	41200	49	1.04	16.44	-56050	1.03
<b>28</b>	45950	50	1.03	18.34	-49025	1.03
<b>29</b>	52950	50	1.04	21.13	-47450	1.04
<b>30</b>	55025	50	1.04	21.96	-47675	1.04
<b>31</b>	60525	50	1.04	24.15	-47575	1.05

<b>32</b>	66200	50	1.04	26.42	-47625	1.05
<b>33</b>	64050	50	1.04	25.56	-48725	1.05
<b>34</b>	59600	50	1.04	23.78	-48075	1.05
<b>35</b>	55775	50	1.03	22.26	-49325	1.04
<b>36</b>	52775	50	1.03	21.06	-49675	1.04
<b>37</b>	51675	50	1.03	20.62	-49750	1.04
<b>38</b>	45975	50	1.02	19.14	-49850	1.04
<b>39</b>	48825	50	1.02	19.48	-50775	1.04
<b>40</b>	47375	50	1.02	18.90	-49975	1.04
<b>41</b>	51675	50	1.03	20.62	-50375	1.04
<b>42</b>	53250	50	1.03	21.25	-49225	1.04
<b>43</b>	55500	50	1.03	22.15	-49600	1.04
<b>44</b>	55425	50	1.03	22.12	-49975	1.04
<b>45</b>	53900	50	1.03	21.51	-49825	1.04
<b>46</b>	49600	50	1.02	19.79	-49900	1.04
<b>47</b>	54900	50	1.03	21.91	-50125	1.04
<b>48</b>	54050	50	1.03	21.57	-49375	1.04
<b>49</b>	54175	50	1.03	21.62	-49525	1.04
<b>50</b>	50850	50	1.02	20.29	-49675	1.04

## APPENDIX B - STOPS AND SHORT TRADING

The following table is the inverse of appendix A – that is, short selling on every open, closing the trade at the end of each day, or getting stopped out at the various protective stop-loss levels. The results from this short selling strategy show very similar characteristics to those in appendix A. You can see, however, that as the stop is widened the profitability drops dramatically, which suggests the upward bias of the stock market over the longer term. My research suggests that short selling strategies for stock markets are only profitable over very short time intervals and have poor results when longer time frames are used.

Stop points	No. of trades	Net Profit	Profit (%)	Avg. win/loss	Avg. trade	Max. Drawdown	Profit Factor
1	2506	67500	6	19.92	26.94	-13425	1.40
2	2506	49300	11	9.30	19.67	-28925	1.15
3	2506	101750	16	6.07	40.60	-35250	1.22
4	2506	84125	20	4.44	33.57	-29475	1.15
5	2506	80425	24	3.42	32.09	-28650	1.12
6	2506	62600	28	2.78	24.98	-25725	1.08
7	2506	67925	31	2.34	27.10	-26600	1.08
8	2506	67425	34	2.01	26.91	-25050	1.07
9	2506	77175	37	1.78	30.80	-28875	1.08
10	2506	87300	40	1.62	34.84	-30300	1.09
11	2506	97275	42	1.48	38.82	-31050	1.09

<b>12</b>	2506	94025	44	1.38	37.52	-31950	1.09
<b>13</b>	2506	82100	45	1.29	32.76	-31075	1.07
<b>14</b>	2506	70700	46	1.22	28.21	-33500	1.06
<b>15</b>	2506	60575	47	1.17	24.17	-35225	1.05
<b>16</b>	2506	40000	47	1.13	15.96	-40425	1.03
<b>17</b>	2506	27850	48	1.09	11.11	-45200	1.02
<b>18</b>	2506	10400	48	1.06	4.15	-60150	1.01
<b>19</b>	2506	18225	49	1.04	7.27	-63550	1.01
<b>20</b>	2506	19675	49	1.03	7.85	-62925	1.02
<b>21</b>	2506	19275	50	1.01	7.69	-63900	1.02
<b>22</b>	2506	9125	50	0.99	3.64	-66800	1.01
<b>23</b>	2506	10950	50	0.99	4.37	-63200	1.01
<b>24</b>	2506	-150	50	0.97	-0.06	-72150	1.00
<b>25</b>	2506	-12250	50	0.96	-4.89	-82675	0.99
<b>26</b>	2506	-22750	50	0.95	-9.08	-90425	0.98
<b>27</b>	2506	-28250	50	0.94	-11.27	-92900	0.98
<b>28</b>	2506	-32525	51	0.94	-12.98	-94275	0.98
<b>29</b>	2506	-28700	51	0.94	-11.45	-95100	0.98
<b>30</b>	2506	-23275	51	0.93	-9.29	-90025	0.98
<b>31</b>	2506	-32225	51	0.93	-12.86	-98800	0.98

<b>32</b>	2506	-35400	51	0.92	-14.13	-103425	0.97
<b>33</b>	2506	-34100	51	0.92	-13.61	-100525	0.97
<b>34</b>	2506	-41150	51	0.92	-16.42	-105900	0.97
<b>35</b>	2506	-50275	51	0.91	-20.06	-113125	0.96
<b>36</b>	2506	-53875	51	0.91	-21.5	-117400	0.96
<b>37</b>	2506	-56325	51	0.91	-22.48	-123300	0.96
<b>38</b>	2506	-61500	51	0.90	-24.54	-126425	0.95
<b>39</b>	2506	-59925	51	0.90	-23.91	-124375	0.96
<b>40</b>	2506	-58150	51	0.90	-23.2	-122500	0.96
<b>41</b>	2506	-61025	51	0.90	-24.35	-123925	0.96
<b>42</b>	2506	-56750	51	0.90	-22.65	-119400	0.96
<b>43</b>	2506	-57325	51	0.90	-22.88	-118600	0.96
<b>44</b>	2506	-62175	51	0.90	-24.81	-122325	0.95
<b>45</b>	2506	-67450	51	0.89	-26.92	-126725	0.95
<b>46</b>	2506	-65075	51	0.90	-25.97	-124225	0.95
<b>47</b>	2506	-67275	51	0.89	-26.85	-125475	0.95
<b>48</b>	2506	-58650	51	0.90	-23.4	-115975	0.96
<b>49</b>	2506	-61475	51	0.89	-24.53	-118075	0.96
<b>50</b>	2506	-57800	51	0.90	-23.06	-115900	0.96

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