

Introduction to Position Sizing™: The Secrets of the Masters Trading Game

By Van K. Tharp, Ph.D.

Background:

People are always looking for the "real" secrets of trading success, but their mental biases always have them looking in the wrong places and at the wrong things. Consequently, they search for magical trading systems with 75% accuracy or better or for great entry systems that they think will help them pick the right stock. Picking the right stock has nothing to do with success and neither does the accuracy of your stock picking.

You might be saying, "How can you say that?" Well, practically all Market Wizards agree that the key ingredients to your success are (1) the golden rule of trading - "cut your losses short and let your profits run;" (2) position sizing™ or that part of your trading system that tells you how much; and (3) the discipline to do both. When you think about the golden rule of trading, it basically describes exits - how you abort losses and ride winners. When you think about position sizing™, it basically controls how much you risk on any given trade.

I've designed Position Sizing™: The Secrets of the Masters Trading Game to help you learn the secrets to trading success before you play the markets. This game totally de-emphasizes entry or "stock picking" and instead requires that you focus on the most important aspects of trading - position sizing™ and letting your profits run. Our game has ten levels that get progressively more difficult to master. However, once you've mastered these principles, you'll know you've mastered some of the key skills to trading success.

To complete this game, you must master four key principles. These principles include (1) understanding the importance of R-multiples; (2) understanding the difference between expectancy and probability; (3) learning how to let profits run without letting them

escape; and (4) using position sizing™ to make sure you have a low-risk trade. The Position Sizing™: The Secrets of the Masters Trading Game is designed to drive these principles home by giving you the experience of making (or losing) money in a game environment where losing is safer.

R-Multiples: First, you must understand the principle of R-multiples. R stands for risk, the risk you take on any trade when you enter the market. It reflects that point at which you plan to get out in order to preserve your capital. For example, if you buy a stock at \$50 and you plan to get out if it drops to \$47 or below, then your R value in this trade is \$3.00 (i.e., \$50 minus \$47 = \$3.00).

You want your losses to be small (i.e., an R-multiple of one or less) and your profits to be large R-multiples (2 or more). Losses can be bigger than 1R, when the market gaps against you and goes through your "get me out" point. Then can also be bigger than 1R when you make a psychological mistake and fail to get out when your stop point is reached. Excessive costs (commissions and slippage) can also result in big losing R-multiples.

This game is not necessarily like the movement of various stocks in the market. Instead, it is like running a trading system that has certain characteristics.

When you let your profits run, then you want your profits to be much bigger than 1R. For example, if R is \$3 (as it was in our example above), then a \$15 profit is a 5R profit. Now suppose you have a trading system in which you are right 25% of the time. When you win, you make 5R (i.e., in our example \$15). When you lose, you lose 1R or \$3. In our example with your system that is right one time (i.e., a \$15 gain) for every three losses of \$3 each (i.e., a total of \$9 in losses), you still make a profit of \$6. Imagine that! You are right 25% of the time and you still make money. That's why the principle of cutting your losses short (i.e., so you will have small R-multiple losses) and letting your profits run (i.e., so you will have big R-multiple gains) is so important. You still make money, even when you only make money on 25% of your trades.

The first level of Position Sizing™: The Secrets of the Masters Trading Game teaches you position sizing™ and the importance of large R-multiples. What you win or lose will be expressed as R-multiples and these values are described in the level instructions for each level and are also viewable in the statistics window while playing the simulation. Thus, a loss of 1 times what you risk is a 1R loss. A loss of 5 times what you risk is a 5R loss. Similarly, a gain of 1 times what you risk is a 1R gain. A gain of 10 times what you risk is a 10R gain.

In level one, for example, sixty percent of your trades (on the average) will be winners. Most of them (55% of all trades on the average) will be 1R gains. Thus, on 55% of your trades, you'll win whatever you risk. If you risk \$1,000, then you will win \$1,000 on a 1R gain. In level one, 5% of all trades will be 10R gains. In other words, if you risk \$1,000 when one of these trades come along, you'll make ten times what you risked or \$10,000. It's simple and easy. However, 35% of your trades in level one will be 1R losers and 5% of your trades will be 5R losers. Hopefully, you'll get a chance to learn the psychological agony of having a 5-R trade go against you in this level.

Notice how level one has probability on your side (60% winners) and the big R-multiple winners as well. That is, you have the potential of a 10-R winner in your favor. That won't be the case in the future levels. As a result, it brings up our next topic - expectancy.

Expectancy Versus Probability: Expectancy is a mathematical formula that tells you how much you will win on the average per dollar risked. It takes into account both the probability of winning (or losing) and the size of the R-multiples. Casino gambling games are all negative expectancy games - you cannot make money in the long run unless you can do something to change the odds. In trading, you must play a different game from gambling. You must have a positive expectancy game on your side in order to make money in the long run.

Most people make a mistake by looking for games (or trading systems) that make them right. However, such games can have a negative expectancy (meaning that you'll lose money overall) if some of the losers have large R-multiples. More importantly, some of the best trading ideas have large R-multiples in your favor, but only make money 25-40% of the time.

Let's look at an example. Suppose you buy a stock and plan to get out when it drops against you by a dollar. For example, if you buy a \$50 stock, you'll get out when it drops to \$49. However, when you are right you expect that stock to move 30%. In the case of our \$50 stock, a 30% move is an additional \$15. Now think about this situation. When you are wrong, you lose one dollar per share! When you are right, you make \$15 per share. What if you were only right 30% of the time - you make money in three of ten trades. Thus, in ten trades you'd make \$15 per share an average of three times. Your total gain would be \$45 per share. In the same ten trades, you'd lose \$1 per share on the average seven times. Your total loss would be \$7 per share. Thus, over the ten trades you'd end up making \$38 per share - even though you were only right 30% of the time. Large R-multiples in your favor are much more significant than "being right" in the equation for making money in the market. Remember that!

The reason you will have made so much money is because of your exits. Your exits gave you a trading method that had a very high positive expectancy. So let's explore this concept of expectancy a little more thoroughly.

Basically, when you calculate expectancy you will multiply each R-multiple (both negative and positive) by its probability of occurrence. You then sum the results (i.e., subtracting the values of the negative R-multiples) to get the total expectancy. All of the probabilities, of course, must add up to 100%. If not, it means that you have missed some. In the case of our stock example, you multiply 0.3 times 15, which is 4.5, and 0.7 times minus 1, which is minus 0.7. When you add 4.5 and minus 0.7, you have a total expectancy of 3.8. This means that you will average in gains, over many trades, 3.8 times your risk on each trade. You can also calculate expectancy by simply adding up the R-

multiples (with winning being positive numbers and losing being negative numbers) and then dividing that sum by the total number of trades.

While the calculation of expectancy might seem complicated to some of you, we have good news. The game will calculate the expectancy for you. You can find the expectancy of each level in the statistics window. You'll also know what the probability is of each trade. Since the trades are random, you could easily get 10 losers in a row and that won't follow the expectancy. However, at the end of the level, you'll probably be pretty close to the expectancy of that level. It's just like real trading in that you won't know whether the next trade will be a winner or not. However, to help you the game will also give you the expectancy of the trades to date as they are randomly picked. Thus, you will know how far the trades are off from the likely expectancy that was built into the game.

There is a critical aspect to expectancy that you must understand. Expectancy and probability are not necessarily the same. As I said earlier, you must have expectancy on your side, but you don't need to have probability on your side. Let's look at the simple stock market example given earlier. You win 30% of the time, but when you win it's a 5-R gain. You lose 70% of the time, but when you lose it's a 1-R. You only make money 30% of the time. Thus, the odds are against you. However, the game has a positive expectancy - giving you an average of 3.8 times your risk each trade.

Probability and expectancy will be separate in every level after level two. This is a more advanced trading concept for you to master. Beginning with level five, you'll even have the option of going with the probability (i.e., winning most of the time) or going with the expectancy. Hopefully, you'll learn how dangerous it is to bet against the expectancy, even though you get to win (or be right) more often.

Letting Your Profits Run: In the first six levels, getting a big R-multiple will be easy. If you hit one, you get the big win. If you hit a 10R multiple, you will win 10 times what you risk.

In the last four levels, you'll have to earn your big R-multiples by letting your profits run - just like in real trading. Losing trades will happen quickly, but winning trades will take time to develop. When a winning trade starts, it will probably just be a 1R win. You now have to wait another day (i.e., in the case of the game, trade) to determine if it will continue and how much of your gain you want to risk. When a winning streak starts, the chances of it continuing are good. However, you'll need to decide if you want to risk it all or just a portion of your profits.

For example, here's the start of a winning streak:

Joe's Foods, Inc. Risk \$1,000 Won \$1,000 Amount At Stake \$2,000
Do you want to risk the entire \$2,000 or not? Let's say you do and you again have a 1:1 winner. Here is your situation:

Joe's Foods, Inc. Risk \$2,000 Won \$2,000 Amount At Stake \$4,000

You now have a 3R gain (i.e., your initial risk plus another 3R). Do you risk it all or just a portion of it? If you risk it all, you could allow a substantial gain to turn into a loss. Risking a portion of it is the equivalent to moving up your stop loss point in real trading. You decide to risk it all one more time. Fortunately, you win and your new situation is as follows:

Joe's Foods, Inc. Risk \$4,000 Won \$4,000 Amount At Stake \$8,000

You now have a 7R gain (i.e., your initial risk plus another 7R). If you risk it all, you'll have a huge profit if you win. On the other had, you could get a 3R or 4R loser. If that

happens, your loss would be huge. As a result, you decide to cut your risk back to \$2,000. You now wait for the next day's activities to occur. Again, you win:

Joe's Foods, Inc. Risk \$2,000 Won \$2,000 Winnings \$10,000

You can now risk any portion of that \$10,000 or all of it. You already have a 9R profit on this trade, based on your original \$1,000 risk. Do you now understand how letting your profits run can produce big R-multiple gains? The seventh level you play will require that you master the secret of letting your profits run in order to make much money.

Using Position Sizing™ (i.e., how much you risk) so that you have a low risk idea: Imagine that you are playing the first level, which you will be doing shortly. You have \$10,000 in equity. You know that sixty percent of your trades, on the average, will be winners. You also know that there is a 10R gain someplace in your future. You decide to risk \$2,000 or 20% of your equity. The first trade occurs and it ends up being the 5R loser. You've lost five times your bet of \$2,000 or \$10,000. That was your entire stake and you are now bankrupt. Thus, you risked too much, despite having both expectancy and probability in your favor. You went bankrupt.

In any positive expectancy game, there is a percentage of your equity that will give you an optimum return. That optimum percentage will give you the maximum rate of return over time. It will also give terrible drawdowns. Lower percentages of risk will give you less return and smaller drawdowns. And if you risk too much, you risk bankruptcy.

Thus, my definition of a low risk idea is:

"an idea with a positive expectancy that is traded at a risk level that will allow you to survive in the short term, so that you can achieve the positive expectancy over the long term."

At each level, you will have to study the situation thoroughly to decide how much you want to risk on each trade. One of the main lessons you must master in order to profit will be the art of position sizing™. You can think about various strategies, such as playing the markets money or fixed ratio trading, and try them out without risking real money. In addition, you can purchase our reports on money management and position sizing™ and learn about ideas that you may never have considered. Call 919-852-3994 for more details.

The objective of the overall game is to safely complete all ten levels without going bankrupt, while making as much as you can.

Now go to the "File" menu and choose "New Simulation..." In the window that appears, make sure "Standard Game" is selected and then press the "OK" button. This will begin the simulation and display the instructions for the first level. The object of this level is to make at least 50% within 75 trials, allowing you to move to the next level. In each level, you'll automatically advance if you increase your equity by five times.

Much success and may you learn a great deal from this game!

Van K. Tharp, Ph.D.

Position Sizing™: The Secrets
of the Masters Trading Game
Instructions for Level One

This is the simplest game you will play. At this level you are given a trading system in which both the probability of winning and the expectancy of the game are in your favor. On the average, sixty percent of the trades will be in your favor. There is even a 10 to 1 winner with a five percent chance of occurring. In fact, the only real danger you have is that there is also a big R-multiple against you - a 5 to 1 loser with a five percent chance of occurrence. You can click on View, Statistics, View buttons and see the exact odds of winning or losing.

We sometimes get questions like what does this game have to do with trading. This game mimics a system, not the market. Imagine you are trading the market. Assuming a 1R risk of \$1, if you win, you have a 55% chance of winning a \$1 per share and a five percent chance of winning \$10 per share. You also have a 35% chance of losing \$1 per share and a five percent chance of losing \$5 per share. Wouldn't you want to play that system? Your only decision when each investment comes up is to determine how many shares to buy and how much you want to risk. There is no margin in this game, because, unlike the real market, you won't do worse than the stated odds.

You will have the opportunity to make 75 trades. If you increase your equity by 50% or more by the end of the 75 trades, then you will move to the next round with your new equity. Thus, there is some advantage to having more money - you get to play with more money in the next round.

Should you ever increase your equity by more than 5 times the starting value, then you will automatically be allowed to move into the next round.

If you have a profit at the end of 75 trades, but less than 1.5 times your starting amount, then you will be given another 25 trades to make your goal.

If you have a loss at the end of the 75 trades (i.e., less than your starting equity), then you will be required to start the level over with a 10% penalty from your prior starting equity.

Level One

Questions & Answers

Question:

I am intrigued by game one, and trying to figure out a systematic basis for sizing positions. Could you comment on my first algorithm, and perhaps hint at how it can be improved?

At the start, you have 75 trades to go and a target return of \$5000 so you need to make an average of \$67/trade. The game's expectancy is 45cents/trade for each dollar invested. This suggests your first position be \$148 (that is \$67 divided by 45 cents). You size your next position on the same basis except that you will have 74 trades to go and a target return that will be less than \$5000 if your first trade was profitable (and more than \$5000 if it was not.) Obviously the expectancy does not change.

As I played the game, the temptation was to say, "aw shucks, the next one will be a 10 bagger so let's bet the ranch". I read enough of your excellent book "Trade Your Way to Financial Freedom" to resist the temptation, but it led me to wonder when would have made trading sense to depart from my position sizing™ algorithm.

Please don't leave me hanging with a "your way works but you can make more money..." type of answer! I'd really appreciate a hint on how to figure this out properly even if you have to refer me to a statistics book. Many thanks for the game.

Response:

I won't give you the answer, because then I would be giving everyone the answer. However, you need to examine your assumptions. You've made the assumption that you need \$15,000 to go into the second level, which you do. However, when you do go on to the next level, you go in with whatever amount you have at the end of level one. Right now that's your return at the end of the level (if it's over \$15,000) or five times your equity if you hit it inside the game. Thus, you could transfer as much as \$50,000 over to level 2.

If the expectancy were 0.45, then what percentage would you bet to get the maximum rates of returns? Hint ... what's the worst loss against you. Are you willing to bet more just in case that worst-case loss does not come up before the 10 to 1 hits? Those are some of the issues you need to think about.

You're better off to work out these issues for yourself. They are issues that face every investor/trader, but most people ignore them. What would happen if you bet 100%? What would happen if you bet 45%? What would happen if you bet 20% or 10% or 5%? Remember the numbers are random. You could get 25:1's against you in a row or you could go 40 trails without ever hitting one? We do an entire seminar on how to use position sizing™ to meet your objectives. If you're interested, call our office at 919-852-3994.

Question:

Can I skip trades in level one?

Response:

That question makes the assumption that some trades are better than others and that there is a way to figure it out. If there is a positive expectancy and the odds are 60% in your favor (and every trade is different), then why would you want to skip any of the trades? It's possible to make a lot more than \$15,000 in this game, but not by skipping trades. If you skip a trade, you have a 60% chance of skipping a winner.

Question:

What are some of the common mistakes people make playing this game?

Response:

Most people go bankrupt often because they do not understand the most important aspects of trading (see the general instructions) or their greed gets in the way. However, here are some of the most common mistakes: 1) risking too much and going bankrupt; 2) betting more after a losing streak; 3) failure to develop a strategy for your bet sizing; 4) failure to stick with your bet sizing strategy; 5) risking too little and not making any money.

Question:

In the first game with 75 trades, you give a breakdown of expectations of winning versus losing trades and payoff. Are those odds and number of winners and losers exact and can I really count on them? Please let me know. Thanks.

Response:

A random number generator generates these expectations and it determines those probabilities. However, you cannot count on anything, just as you cannot count on the markets.

Question:

I don't have a lot of information about any particular stock or trade item in this game. How am I supposed to make a decision?

Response:

Actually taking every trade in this simulation is a lot like following a system. You don't know which trades will make money, but you know that on the average 60% of them will. You also know that if you take all the trades and practice sound position sizing™, you'll make money in this game.

Position sizing™ is the key to making money in the markets and that's what you need to learn in the first few levels. Most people think that the key to success is analyzing the markets and finding the next winner. And that's why a lot of people have trouble making money in the markets. Instead, the most important question you need to ask is, "How much money should I risk on this particular trade?" This game is designed to teach you success secrets and steer you away from the biases that most people have.

Question:

Why not give us a portfolio to trade?

Response:

We're trying to make this game simple so you learn some important lessons.

Question:

What's a good strategy to play in this game?

Response:

I don't want to give one strategy and have you play that because you'll learn more by experimenting on your own. After all, you won't lose real money. However, a general hint is to risk a percentage of your equity. Trade a percentage of your equity on each trade - enough to do well, but not so much that you'll be bankrupt if a 5 to 1 loser comes up right away. You might consider increasing the percentage when you are ahead and decreasing it when you are behind.

Position Sizing™: The Secrets
of the Masters Trading Game
Instructions for Level Two

This level is identical to the previous level, except now you will be allowed to see the recent trading history for each of the stocks you are investing in. The idea is to minimize your emotional response to a stock's performance when trading in terms of R-multiples. When trading in this manner, you no longer have to focus on predicting the markets, picking the right stocks, and/or being right. Instead, you can focus on your exits and determine how good your system is in terms of expectancy, and make money through the proper application of position sizing.

This is the simplest game you will play. At this level you are given a trading system in which both the probability of winning and the expectancy of the game are in your favor. On the average, sixty percent of the trades will be in your favor. There is even a 10 to 1 winner with a five percent chance of occurring. In fact, the only real danger you have is that there is also a big R-multiple against you - a 5 to 1 loser with a five percent chance of occurrence. You can click on the rules button and see the exact odds of winning or losing.

We sometimes get questions like what does this game have to do with trading. This game mimics a system, not the market. Imagine you are trading the market. If you win, you have a 55% chance of winning a \$1 per share and a five percent chance of winning \$10 per share. You also have a 35% chance of losing \$1 per share and a five percent chance of losing \$5 per share. Wouldn't you want to play that system? Your only decision when each investment comes up is to determine how many shares to buy - how much you want to risk. There is no margin in this game, because, unlike the real market, you won't do worse than the stated odds.

You will have the opportunity to make 75 trades. If you increase your equity by 50% or more by the end of the 75 trades, then you will move to the next round with your new equity. Thus, there is some advantage to having more money - you get to play with more money in the next round.

Should you ever increase your equity by more than 5 times the starting value, then you will automatically be allowed to move into the next round.

If you have a profit at the end of 75 trades, but less than 1.5 times your starting amount, then you will be given another 25 trades to make your goal.

If you have a loss at the end of the 75 trades (i.e., less than your starting equity), then you will be required to start the level over with a 10% penalty from your prior starting equity.

Position Sizing™: The Secrets
of the Masters Trading Game
Instructions for Level Three

This level is similar to level one. You are given a trading system that goes long in the market. Your only choice is to decide how much to risk for each trade. That's it! You simply decide how much to risk. Overall, level two is an even better system than level one gave you. Over many trials, your expectancy will be 0.91 as compared with 0.45 for the first level.

Now that you've reached this level, we recommend that you begin by saving the game. If you should go bankrupt, you will have to start again at the beginning of the game if you don't have a saved game at this level. However, we hope you can get through the game without going bankrupt.

Once again, you will have the opportunity to make 75 trades. Your minimum goal is to make a profit of 50% by the end of the 75 trades so that you can advance to level four. However, you will automatically advance to level three should you increase your equity by 500% from the starting value.

If you have not made a profit at the end of 75 trades, you will need to start this level over again. However, if you have made a profit that's less than 50%, you will then have another 25 trades to reach your goal of 50% to advance to the next level.

If you have a loss at the end of 75 trades, you will have to start the level over again with a 10% penalty (subtracted from your prior starting equity).

The probabilities and payoffs for this level are given in the statistics section of the game (in the View menu.) We'd suggest that you study them carefully and develop a strategy before you begin the game.

Level Three

Questions & Answers

Question:

Why am I not allowed to go short? I would be right 70% of the time. Isn't that what it's all about?

Response:

Hopefully you'll step out of the box of needing to be right by playing this game. You should be learning the importance of large R-multiples over being right. Wait until you get a 30R or 20R trade in your favor and see what that does for your account. Or would you rather have that against you? If being right is that important to you, you'll have your chance to go against the expectancy in level five.

Question:

What's a good strategy to play this game?

Response:

Figuring out a good strategy and learning from your mistakes is one of the skill requirements of this game. What is your worst-case loss? It's four percent, so you'll risk bankruptcy by risking over 25% on any trade. Also think about how many losses you could have in a row. You're only right 30% of the time. It's very likely that you might have 9 losses in a row in your 75 trades. You might even have a streak of losses as big as 20 or more. You need to play to survive that you that you can make money on the 30R trades that might come up. With those two guidelines, design your own strategy.

IITM also sells products designed to help you with strategy development. These include 1) the money management report; 2) a newsletter issue devoted to optimal bet size; and 3) optimal bet size software that will be available for purchase in mid-2002.

Question:

Once again, I don't have much information on any of these investments or trades. How am I to know which one's will go up?

Response:

You don't know what will go up, that's true. But you do know the payoffs and probabilities of the system you will be trading. That's all you need to know to figure out to work out bet sizing strategies. Those strategies are the key to success and this game is designed to get you away from predicting the market and into thinking about those strategies.

Position Sizing™: The Secrets
of the Masters Trading Game
Instructions for Level Four

This level is identical to the previous level, except now you will be allowed to see the recent trading history for each of the stocks you are investing in. The idea is to minimize your emotional response to a stock's performance when trading in terms of R-multiples. When trading in this manner, you no longer have to focus on predicting the markets, picking the right stocks, and/or being right. Instead, you can focus on your exits and determine how good your system is in terms of expectancy, and make money through the proper application of position sizing.

This level is similar to level two and three. You are given a trading system that goes long in the market. Your only choice is to decide how much to risk for each trade. That's it! You simply decide how much to risk. Overall, level two is an even better system than level one gave you. Over many trials, your expectancy will be 0.91 as compared with 0.45 for the first level.

Now that you've reached this level, we recommend that you begin by saving the game. If you should go bankrupt, you will have to start again at the beginning of the game if you don't have a saved game at this level. However, we hope you can get through the game without going bankrupt.

Once again, you will have the opportunity to make 75 trades. Your minimum goal is to make a profit of 50% by the end of the 75 trades so that you can advance to level five. However, you will automatically advance to level three should you increase your equity by 500% from the starting value.

If you have not made a profit at the end of 75 trades, you will need to start this level over again. However, if you have made a profit that's less than 50%, you will then have another 25 trades to reach your goal of 50% to advance to the next level.

If you have a loss at the end of 75 trades, you will have to start the level over again with a 10% penalty (subtracted from your prior starting equity).

The probabilities and payoffs for this level are given in the statistics section of the game (in the View menu.) We'd suggest that you study them carefully and develop a strategy before you begin the game.

Position Sizing™: The Secrets
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Instructions for Level Five

Congratulations! You are now at level five of Position Sizing™: The Secrets of the Masters Trading Game. At this level, you now get a system that's even better to trade. It has an expectancy of 1.36. However, you will only have winning trades 25% of the time. Thus, expectancy and probability are once again on opposite sides.

At this point in the game, you should have learned how important it is to follow the expectancy. To make this level a little more interesting, we're going to tempt you by allowing you to bet against the expectancy. In other words, you can go long (with the expectancy) or short (with the probability) on any given trade. You may elect to go long on one trade or on all of them.

Once again, you will have the opportunity to make 75 trades. Your goal will be to make a profit of at least 50% to advance to the next level. You will automatically advance to level six should you increase your starting equity by 500% at any time.

If you have not made a profit at the end of 75 trades, you will need to start this level over again. However, if you have made a profit that's less than 50%, you will then have another 25 trades to reach your goal of 50% to advance to the next level.

If you have a loss at the end of 75 trades, you will be required to start this level over with a ten percent reduction in equity from your initial starting equity.

The probabilities and payoffs for this level are given in the statistics section of the game (in the View menu.) We'd suggest that you study them carefully and develop a strategy before you begin the game.

Level Five

Questions & Answers

Question:

Is there any advantage to going short in this level?

Response:

Yes, you get to make money on 75% of your trades. If that's important to you (as opposed to advancing to the next level or making a profit overall), then go ahead.

Question:

How do you recommend that I play this level?

Response:

I have no recommendations. At this level, risking 20% on the long side gives you a chance to go bankrupt and risking as little as 4% on the short side gives you a chance at bankruptcy. With a reliability of 25%, you have a good chance of a streak of ten losses against you - and that could be as high as 25 or more losses if you are unfortunate. Your strategy should consider these elements. Once again, we sell products at IITM to help you determine bet size strategies. However, it's important for you as a learning tool to learn to strategize about position sizing™.

In level seven, you will have more than position sizing™ to think about, so you need to master position sizing™ strategy. Think!

Position Sizing™: The Secrets
of the Masters Trading Game
Instructions for Level Six

This level is identical to the previous level, except now you will be allowed to see the recent trading history for each of the stocks you are investing in. The idea is to minimize your emotional response to a stock's performance when trading in terms of R-multiples. When trading in this manner, you no longer have to focus on predicting the markets, picking the right stocks, and/or being right. Instead, you can focus on your exits and determine how good your system is in terms of expectancy, and make money through the proper application of position sizing.

Congratulations! You are now at level six of Position Sizing™: The Secrets of the Masters Trading Game. At this level, you now get a system that's even better to trade. It has an expectancy of 1.36. However, you will only have winning trades 25% of the time. Thus, expectancy and probability are once again on opposite sides.

At this point in the game, you should have learned how important it is to follow the expectancy. To make this level a little more interesting, we're going to tempt you by allowing you to bet against the expectancy. In other words, you can go long (with the expectancy) or short (with the probability) on any given trade. You may elect to go long on one trade or on all of them.

Once again, you will have the opportunity to make 75 trades. Your goal will be to make a profit of at least 50% to advance to the next level. You will automatically advance to level seven should you increase your starting equity by 500% at any time.

If you have not made a profit at the end of 75 trades, you will need to start this level over again. However, if you have made a profit that's less than 50%, you will then have another 25 trades to reach your goal of 50% to advance to the next level.

If you have a loss at the end of 75 trades, you will be required to start this level over with a ten percent reduction in equity from your initial starting equity.

The probabilities and payoffs for this level are given in the statistics section of the game (in the View menu.) We'd suggest that you study them carefully and develop a strategy before you begin the game.

Position Sizing™: The Secrets
of the Masters Trading Game
Instructions for Level Seven

If you've come to this level without going bankrupt or needing to resume a saved game, then you've come a long way to mastering position sizing™. You at least understand it well. Now in level seven, you must learn to let your profits run in addition to doing a good job of position sizing™.

When we are not in a winning streak, you will be presented with a new investment offering each time. Your job will be to determine whether to go long or short and to then determine how much you will risk. If you go short, then your probability of winning will be high. However, your expectancy will be negative because (1) when you lose, you'll lose big and (2) if you lose, you'll get locked out of winning streaks. We'd strongly suggest that you NOT go short. This is very much like your experience in levels five and six.

If you go long, then your probability of winning will be low. You'll only win about 30% of the time. In this game, getting large R-multiple winners isn't just a matter of probability. You have to earn a large R-multiple win. However, the advantage of going long is that you'll get to participate in the winning streaks. In these streaks, you'll be able to earn huge R-multiple profits by letting your profits run in the streak. Here's what will happen:

When you go long and win, you'll enter into a winning streak. Now the probability of winning is in your favor. And each time you play, you'll have the opportunity to risk your accumulated profits during the streak (plus your initial risk). You'll be able to risk all or a portion of that amount. If you risk all of your winnings, you'll have the opportunity to at least double it. For example, if you were to let your profits ride each time during five consecutive winners, you would have accumulated at least a 32-R profit.

In the markets, letting your profits run is not as easy as just watching your profits double each day. Winning streaks end and trending stocks tend to have big corrections. Thus, you'll need to protect your profits in some way while you let them ride. You'll also face this challenge playing levels eight, nine, and ten of the game. The losing streak may end, thus causing you to lose all of your profits if you decide to double up each day. In addition, the losing streak may have a 2-R or 3-R loser in it without ending. If you are risking all of your profits and a 3-R loss comes up, you'll not only have a huge loss, but you'll miss out on the opportunity of continuing the winning streak. This is because winning streaks in levels seven, eight, nine, and ten only end when a 1-R loss occurs or when you've lost all of your accumulated profits due to a 2R or 3R loser - whichever comes first. Hopefully, you'll learn not to risk all of your accumulated profits because of the lessons in this game.

When you enter the game, you must make a decision and determine how much you will risk. You'll have to risk something, or you will have no profits to risk if a winning streak starts. If you do not do so, then the game will automatically enter the trade with zero risk. This means that if a winning streak starts, you will have no money to capitalize on it.

In the statistics section of the game, you can see the exact odds for long and short trades. These include both the odds when you are in a streak and when a new investment is placed. Study them carefully and develop a plan before you start this level.

In addition, the randomly selected sample of results will not necessarily reflect the expectancy. As a result, an ongoing expectancy will always be available. Thus, you can determine whether or not the sample expectancy is above or below the expectancy you should be getting. This expectancy will include the results of both the new offerings and of the winning streaks.

Once again, your task is to increase your equity by 50% in 75 trades to advance to level eight. You'll automatically go to level eight if you increase your starting equity by 500%.

If you have some profit at the end of level seven, but not 50%, you'll be given an additional 25 trades to make it.

If you don't have a profit at the end of 75 trades, you'll need to start this level over again with a ten percent reduction from your prior starting equity level. However, bankruptcy will require that you begin the game from level one unless you resume a saved game.

Level Seven

Questions & Answers

Question:

How can I invest without seeing a chart of the investment? I don't want to invest in any of these until I know they are going up or in a winning streak.

Response:

This is not an exercise in stock picking. It's an exercise that involves following a system so that you can learn 1) position sizing™ and 2) letting your profits run. Every trade has the potential to be a winner and start a winning streak.

Imagine that you are in a winning stock, however, you have a tight stop. You might end up getting stopped out three or four times in a row. However, you keep doing it, because one day you know you'll catch it. We'll that's the same thing as playing this system. Pretend that every one of these looks like a winning stock on the chart. You are just hoping that it takes off on you as soon as you enter. If not, you get out at a small loss and try again.

Question:

I didn't risk anything in a streak. I won, but then I was presented with a new equity. What happened?

Response:

If you risked nothing, then you had no money to participate in the win streak. Since you had no money, it ended. Always risk a little or you risk this happening.

Question:

How can I make money going long? It shows that both long and short have a negative expectancy?

Response:

That's true, but going long allows you to participate in winning streaks and let your profits ride. When you do, you can turn a small win into a huge R-multiple gain and thus give you a positive expectancy in the game. It's one of your major lessons to learn.

Question:

Can I skip trades in level seven?

Response:

Yes, by betting zero, but that will lock you out of a winning streak because you'll have nothing to invest.

Question:

Can I bet zero in the game until it enters the winning streak.

Response:

Again, you'd have no money to risk in the winning streak and it will just end. You can do that if you want to do it, but you'll lose lots of opportunity.

Question:

What are some of the common mistakes people make playing this game?

Response:

Most people go bankrupt often because they do not understand the most important aspects of trading (see the general instructions) or their greed gets in the way. However, here are some of the most common mistakes: 1) risking too much and going bankrupt; 2) betting more after a losing streak; 3) failure to develop a strategy for your bet sizing; 4) failure to stick with your bet sizing strategy; 5) risking too little and not making any money; 6) not letting profits run enough during a winning streak; and 7) risking all of your profits continually during a winning streak.

Question:

In level seven, like the others, you give a breakdown of expectations of winning versus losing trades and payoff. Are those odds and number of winners and losers exact and can I really count on them? Please let me know. Thanks.

Response:

Just as in the other levels, a random number generator, governed by the given probabilities, generates these expectations. You cannot count on anything, just as you cannot count on the markets. However, your results should average out to the game expectancy over a large number of trades.

Question:

These games seem more like luck than anything else. Everything is random.

Response:

It's not luck if you learn position sizing™ and letting profits run.

Question:

What if I want to go short with 50 to 100% of my equity when we're not in a streak? I have a 70% chance of winning. My equity buildup doing that a few times could be huge.

Response:

Could you do that and survive for ten trades doing that without going bankrupt? Your odds are just 50-50 if you do it twice in a row. Thus, what will happen is that you'll not survive to the end to get a qualifying high score. And you've come a long way to get to this level.

Question:

It seems to me that you have to be very reckless to get a high score at the end. Aren't you rewarding reckless behaviors?

Response:

That may be true in a few cases. The winners are often reckless and lucky. However, this game also involves long-term survival through ten levels. People who get a qualifying score at the end will be survivors who have practiced sound position sizing™ and know how to let their profits run while still protecting them. That's what I'm trying to teach.

Question:

Why not give us a portfolio to trade at this level?

Response:

Again, I'm trying to keep this simple so you'll learn the lessons you need to learn.

Question:

What's a good strategy to play in this game?

Response:

I don't want to give one strategy and have you play that because you'll learn more by experimenting on your own. After all, you won't lose real money. However, a general hint is to risk a percentage of your equity. Trade a percentage of your equity on each

trade - enough to do well, but not so much that you'll have a huge drawdown if we have 20 losers in a row.

When a winning streak starts, you might want to consider risking all of your profits to begin with to build up a large equity. If we get three winners in a row, for example, you could build up to an 8-R profit. At some point, you might want to scale back dramatically and only risk 5 to 25% of your accumulated profits on the winning streak. This would be equivalent to tightening your stop.

Position Sizing™: The Secrets
of the Masters Trading Game
Instructions for Level Eight

This level is identical to the previous level, except now you will be allowed to see the recent trading history for each of the stocks you are investing in. The idea is to minimize your emotional response to a stock's performance when trading in terms of R-multiples. When trading in this manner, you no longer have to focus on predicting the markets, picking the right stocks, and/or being right. Instead, you can focus on your exits and determine how good your system is in terms of expectancy, and make money through the proper application of position sizing.

If you've come to this level without going bankrupt or needing to resume a saved game, then you've come a long way to mastering position sizing™. You at least understand it well. Now in level eight, you must learn to let your profits run in addition to doing a good job of position sizing™.

When we are not in a winning streak, you will be presented with a new investment offering each time. Your job will be to determine whether to go long or short and to then determine how much you will risk. If you go short, then your probability of winning will be high. However, your expectancy will be negative because (1) when you lose, you'll lose big and (2) if you lose, you'll get locked out of winning streaks. We'd strongly suggest that you NOT go short. This is very much like your experience in levels five and six and seven.

If you go long, then your probability of winning will be low. You'll only win about 30% of the time. In this game, getting large R-multiple winners isn't just a matter of probability. You have to earn a large R-multiple win. However, the advantage of going long is that you'll get to participate in the winning streaks. In these streaks, you'll be able to earn huge R-multiple profits by letting your profits run in the streak. Here's what will happen:

When you go long and win, you'll enter into a winning streak. Now the probability of winning is in your favor. And each time you play, you'll have the opportunity to risk your accumulated profits during the streak (plus your initial risk). You'll be able to risk all or a portion of that amount. If you risk all of your winnings, you'll have the opportunity to at least double it. For example, if you were to let your profits ride each time during five consecutive winners, you would have accumulated at least a 32-R profit.

In the markets, letting your profits run is not as easy as just watching your profits double each day. Winning streaks end and trending stocks tend to have big corrections. Thus, you'll need to protect your profits in some way while you let them ride. You'll also face this challenge playing levels nine, and ten of the game. The losing streak may end, thus causing you to lose all of your profits if you decide to double up each day. In addition, the losing streak may have a 2-R or 3-R loser in it without ending. If you are risking all of your profits and a 3-R loss comes up, you'll not only have a huge loss, but you'll miss out on the opportunity of continuing the winning streak. This is because winning streaks in levels seven, eight, nine, and ten only end when a 1-R loss occurs or when you've lost all of your accumulated profits due to a 2R or 3R loser - whichever comes first. Hopefully, you'll learn not to risk all of your accumulated profits because of the lessons in this game.

When you enter the game, you must make a decision and determine how much you will risk. You'll have to risk something, or you will have no profits to risk if a winning streak starts. If you do not do so, then the game will automatically enter the trade with zero risk. This means that if a winning streak starts, you will have no money to capitalize on it.

In the statistics section of the game, you can see the exact odds for long and short trades. These include both the odds when you are in a streak and when a new investment is placed. Study them carefully and develop a plan before you start this level.

In addition, the randomly selected sample of results will not necessarily reflect the expectancy. As a result, an ongoing expectancy will always be available. Thus, you can determine whether or not the sample expectancy is above or below the expectancy you should be getting. This expectancy will include the results of both the new offerings and of the winning streaks.

Once again, your task is to increase your equity by 50% in 75 trades to advance to level nine. You'll automatically go to level nine if you increase your starting equity by 500%. If you have some profit at the end of level eight, but not 50%, you'll be given an additional 25 trades to make it.

If you don't have a profit at the end of 75 trades, you'll need to start this level over again with a ten percent reduction from your prior starting equity level. However, bankruptcy will require that you begin the game from level one unless you resume a saved game.

Position Sizing™: The Secrets
of the Masters Trading Game
Instructions for Level Nine

Congratulations, you've come a long way. Now you must master level nine. It will be just like level seven expect that you will not be given either the probabilities or the expectancy in the rules. Otherwise, you play it like level seven. Again, you must learn to let your profits run in addition to position sizing™.

Just like levels seven and eight, when we are not in a winning streak, you will be presented with a new investment offering each time. Your job will be to determine whether to go long or short and to then determine how much you will risk. You'll also need to get a feeling for the probabilities. If you go short, then your probability of winning will be high. However, your expectancy will be negative because 1) when you lose, you'll lose big and 2) if you lose, you'll get locked out of winning streaks. We'd strongly suggest that you NOT go short.

If you go long, then your probability of winning will be low. However, the advantage of going long is that you'll get to participate in the winning streaks. In these streaks, you'll be able to earn huge R-multiple profits by letting your profits run in the streak just like in level four. Here's what will happen:

When you go long and win, you'll enter into a winning streak. Now the probability of winning will in your favor. And each time you play, you'll have the opportunity to risk your accumulated profits during the streak (plus your initial risk). You'll be able to risk all or a portion of that amount. If you risk all of your winnings, you'll have the opportunity to at least double it. For example, if you were to let your profits ride each during five consecutive winners, you would have accumulated at least a 32-R profit. However, we're not telling you the probabilities of winning on the long side with a new investment nor the probabilities of winning in a streak. Part of your job will be to survive

without knowing that. After all, you really don't know what it is in the market even after you've tested a system.

In the markets, letting your profits run is not as easy as just watching your profits double each day. Winning streaks end and trending stocks tend to have big corrections. Thus, you'll need to protect your profits in some way while you let them ride. You'll also face this challenge playing levels four and five of the game. The losing streak may end, thus causing you to lose all of your profits if you decide to double up each day. In addition, the losing streak may have a 2-R or 3-R loser in it without ending. If you are risking all of your profits and a 3-R loss comes up, you'll not only have a huge loss, but you'll miss out on the opportunity of continuing the winning streak. This is because level four and five winning streaks only end when a 1-R loss occurs or when you've lost all of your accumulated profits due to a 2R or 3R loser - whichever comes first. Hopefully, you'll learn not to risk all of your accumulated profits because of the lessons in this game.

When you enter the game, you must make a decision and determine how much you will risk. You'll have to risk something, or you will have no profits to risk if a winning streak starts. If you do not do so, then the game will automatically enter the trade with zero risk. This means that if a winning streak starts, you will have no money to capitalize on it.

In addition, the randomly selected sample of results will not necessarily reflect the expectancy. As a result, an ongoing expectancy will always be available. Thus, you can determine whether or not the sample expectancy is above or below the expectancy you should be getting. This expectancy will include the results of both the new offerings and of the winning streaks.

Once again, your task is to increase your equity by 50% - only this time we give you 125 trades. The game will automatically end if you increase your starting equity by 500%. If you have some profit at the end of level nine, but not 50%, you'll be given an additional 75 trades to make it.

If you don't have a profit at the end of 75 trades, you'll need to start this level over again with a ten percent reduction in your starting equity. However, bankruptcy will require that you begin the game from level one unless you resume a saved game.

Although you will not know the expectancy of the game, an ongoing expectancy will always be available. This expectancy will include the results of both the new offerings and of the winning streaks.

Level Nine

Questions & Answers

Question:

How can I trade in this game? There is no chart. I don't know the expectancy or the probabilities. It's just pure chance.

Response:

It's not chance. You know it's a lot like level seven. You just don't know the exact probabilities. Risk small amounts until you get a feel for the level and its probabilities. We've given you an extra 125 trials so you can do so.

Question:

I didn't risk anything in a streak. It won, but then I was presented with a new equity. What happened?

Response:

Again, you must risk something on every trade. If you risked nothing, then you had no money to participate in the win streak. Since you had no money, it ended. Always risk a little or you risk this happening.

Question:

How do I know whether to go long or short without knowing any of the probabilities or expectancy?

Response:

Going long will allow you to participate in winning streaks and let your profits ride. At this point, you should know what that means. It's one of your major lessons to learn.

Question:

Can I skip trades in level nine until I know the probabilities?

Response:

Yes, but you might miss some good opportunities. You will never know when a winning streak will start and just end because you have no money to risk. I'd recommend that you risk a small amount until you begin to get some history.

Question:

What are some of the common mistakes people make playing this level?

Response:

Again, most people go bankrupt often because they do not understand the most important aspects of trading (see the general instructions) or their greed gets in the way. However, here are some of the most common mistakes: 1) risking too much and going bankrupt; 2) betting more after a losing streak; 3) failure to develop a strategy for your bet sizing; 4) failure to stick with your bet sizing strategy; 5) risking too little and not making any money; 6) not letting profits run enough during a winning streak; and 7) risking all of your profits continually during a winning streak. However, the biggest mistake you can make that is specific to level five is to risk too much until you have a feel for the game.

Question:

What can I count on in this level?

Response:

You cannot count on anything, just as you cannot count on the markets. However, you know that you will be able to let your profits run if you go long and that you will survive if your position sizing™ isn't too large. That's about all you can count on in the real world of trading.

Question:

These games seem more like luck than anything else. Everything is random.

Response:

Again, even when you don't know the expectancy or the probabilities, it's not luck if you learn position sizing™ and letting profits run.

Question:

What's a good strategy to play in this game?

Response:

Play it like you played level seven. This time you get up to 200 trades to finish, so be careful at first and get a feel for the game. Other than that, do the same thing you've been doing and practice the survival skills you've learned.

Question:

Will the odds be the same (even though I don't know them), every time I play level nine?

Response:

That's for you to figure out!

**Position Sizing™: The Secrets
of the Masters Trading Game
Instructions for Level Ten**

This level is identical to the previous level, except now you will be allowed to see the recent trading history for each of the stocks you are investing in. The idea is to minimize your emotional response to a stock's performance when trading in terms of R-multiples. When trading in this manner, you no longer have to focus on predicting the markets, picking the right stocks, and/or being right. Instead, you can focus on your exits and determine how good your system is in terms of expectancy, and make money through the proper application of position sizing.

Congratulations, you've come a long way. Now you must master level ten. It will be just like level eight except that you will not be given either the probabilities or the expectancy in the rules. Otherwise, you play it like level eight. Again, you must learn to let your profits run in addition to position sizing™.

Just like levels seven and eight, when we are not in a winning streak, you will be presented with a new investment offering each time. Your job will be to determine whether to go long or short and to then determine how much you will risk. You'll also need to get a feeling for the probabilities. If you go short, then your probability of winning will be high. However, your expectancy will be negative because 1) when you lose, you'll lose big and 2) if you lose, you'll get locked out of winning streaks. We'd strongly suggest that you NOT go short.

If you go long, then your probability of winning will be low. However, the advantage of going long is that you'll get to participate in the winning streaks. In these streaks, you'll be able to earn huge R-multiple profits by letting your profits run in the streak just like in level four. Here's what will happen:

When you go long and win, you'll enter into a winning streak. Now the probability of winning will be in your favor. And each time you play, you'll have the opportunity to risk your accumulated profits during the streak (plus your initial risk). You'll be able to risk all or a portion of that amount. If you risk all of your winnings, you'll have the opportunity to at least double it. For example, if you were to let your profits ride each during five consecutive winners, you would have accumulated at least a 32-R profit. However, we're not telling you the probabilities of winning on the long side with a new investment nor the probabilities of winning in a streak. Part of your job will be to survive without knowing that. After all, you really don't know what it is in the market even after you've tested a system.

In the markets, letting your profits run is not as easy as just watching your profits double each day. Winning streaks end and trending stocks tend to have big corrections. Thus, you'll need to protect your profits in some way while you let them ride. You'll also face this challenge playing levels four and five of the game. The losing streak may end, thus causing you to lose all of your profits if you decide to double up each day. In addition, the losing streak may have a 2-R or 3-R loser in it without ending. If you are risking all of your profits and a 3-R loss comes up, you'll not only have a huge loss, but you'll miss out on the opportunity of continuing the winning streak. This is because level four and five winning streaks only end when a 1-R loss occurs or when you've lost all of your accumulated profits due to a 2R or 3R loser - whichever comes first. Hopefully, you'll learn not to risk all of your accumulated profits because of the lessons in this game.

When you enter the game, you must make a decision and determine how much you will risk. You'll have to risk something, or you will have no profits to risk if a winning streak starts. If you do not do so, then the game will automatically enter the trade with zero risk. This means that if a winning streak starts, you will have no money to capitalize on it.

In addition, the randomly selected sample of results will not necessarily reflect the expectancy. As a result, an ongoing expectancy will always be available. Thus, you can

determine whether or not the sample expectancy is above or below the expectancy you should be getting. This expectancy will include the results of both the new offerings and of the winning streaks.

Once again, your task is to increase your equity by 50% - only this time we give you 125 trades. The game will automatically end if you increase your starting equity by 500%. If you have some profit at the end of level ten, but not 50%, you'll be given an additional 75 trades to make it.

If you don't have a profit at the end of 75 trades, you'll need to start this level over again with a ten percent reduction in your starting equity. However, bankruptcy will require that you begin the game from level one unless you resume a saved game.

Although you will not know the expectancy of the game, an ongoing expectancy will always be available. This expectancy will include the results of both the new offerings and of the winning streaks.

Good luck and may you learn your lessons well. Dr. Van K. Tharp