Foreword by John Mauldin

SUPER TRADER
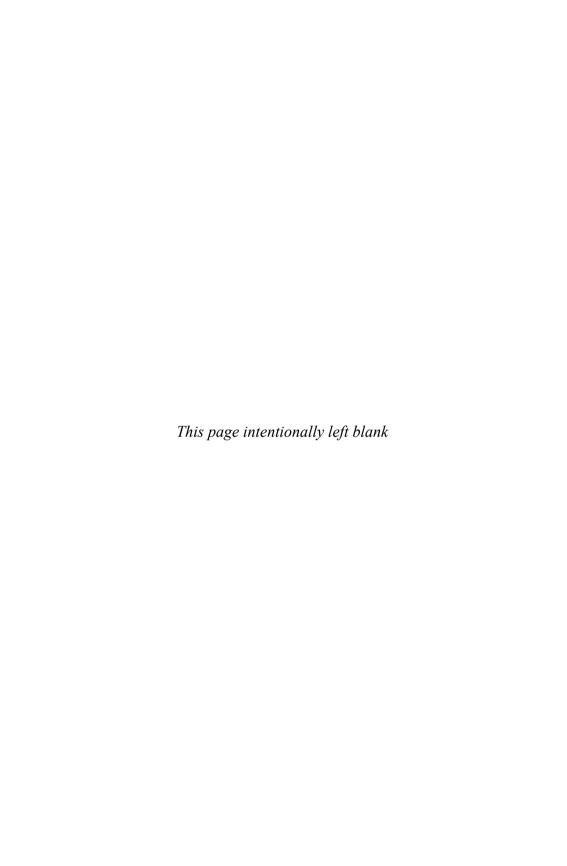
MAKE CONSISTENT PROFITS IN GOOD AND BAD MARKETS

NEW and EXPANDED EDITION

VAN K. THARP

ONE OF THE WORLD'S TOP TRADING COACHES

SUPER TRADER

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MAKE CONSISTENT PROFITS IN GOOD AND BAD MARKETS

EXPANDED EDITION

VAN K. THARP

with Illustrations by Jillian Ellis

This book is dedicated to three very special people in my life. My wife, Kalavathi Tharp, provides a very special spark in my life. Without that spark and her tremendous love, this book would not be possible. My son, Robert Tharp, is one of the real joys in my life. He's a trader, and he has worked very hard to understand these concepts. I'm very proud of him. And my niece, Nanthini Arumugam, has in my mind become the daughter that I always wished I would have. I am very blessed to have all of you in my life.

Give Thanks for Your Blessings

A great book that I recommend is called *The Marriage of Spirit*.[14] It's a whole program to help you lighten yourself, and part of the program is to keep a daily journal. When I did the program, I wrote down all the issues and emotional turmoil that I seemed to be going through that day. When I finished writing, I did exercises to clear out the turmoil.

What was interesting to me was noticing how much turmoil I could write down in that journal. The exercises seemed to work, but there was always something to write down. That surprised me since I had spent hundreds of hours of personal clearing work over the years; I'd expected to be pretty clear.

I remember an old adage that goes, "You are what you think about." Actually, that's the law of attraction that you hear so much about these days. I'm very strongly in favor of personal clearing because most people have major scars on their souls that they need to heal. However, I had cleared just about all of them as far as I knew, but I was still coming up with stuff.

Then it began to dawn on me how much time I was spending in my life looking for things to clear. When you look, you always find something. As a result, I changed my focus to giving thanks each day. Instead of looking for issues, I spent the same amount of time writing down the blessings in my life and giving thanks for those blessings. Quite often the blessings are the same ones, but that's okay because I'm still thankful for them.

I find that the process of writing down my blessings and giving thanks changes my focus entirely from the old process of finding my issues. What's occurred is a gradual lightening of my spirit. Again, this is a wonderful vitamin. Try it.

Here's your assignment: Get a journal, and each day write down five blessings you've experienced for which you are very grateful. In addition, if you find yourself worrying about anything or fearful about anything, write it down on a piece of paper and

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14 Leslie Temple-Thurston and Brad Leslie, *The Marriage of Spirit: Enlightened Living in Today's World,* CoreLight, Santa Fe, N.M., 2000.

give it to God. Put it in your own God Box, but remember that you have to be totally willing to turn it over to God and release it. If you don't give it willingly, you'll find that God is quite willing to let you keep it. *The Secret Gratitude Journal*[15] is an excellent vehicle for this purpose. In addition, there is a free iPhone app called "Gratitude" which serves the same purpose.

Follow Your Bliss

When I first went through *A Course in Miracles*, I made a commitment to follow my bliss. Joseph Campbell stated in his remarkable series *The Power of Myth*[16] that following your bliss is essentially following God's path. That seemed great to me: Do what gives me joy, and my life will work better.

In 1986, I made a commitment to quit my part-time job. I was working one day a week on a job I hated, but that job was a security blanket. As long as I was part time, I had medical benefits and the possibility of returning to working full time again.

Follow Your Bliss

15 Rhonda Byrne, *The Secret Gratitude Journal,* Atria Books, New York, 2007.

16 Joseph Campbell, *The Power of Myth,* Doubleday, New York, 1988.

I quit the job and got rid of the security blanket. Two weeks later my ex-wife unexpectedly lost her job and was not reemployed for about nine months. However, we made it through that year without having to borrow much money. Everything worked out fine.

By 1987 my own business was progressing. I decided that I needed to hire a secretary to keep up with the workload. However, I hadn't made that much money the prior year, and a secretary's salary would take up most of that. Nevertheless, I took the plunge—another sign of commitment—and that year was the first year I made a six-figure salary. My business really seemed to take off from there.

In each case, the decisions were difficult. I was giving up security and the status quo for something unknown. Even though I hated the known and loved what I was going into, it was very scary. By the way, these are all steps to show commitment, and I've already talked about how important that is.

Along the way, through following this guidance about where joy seemed to be, I moved away from almost every attachment I had at the time, which included my first marriage. It wasn't working, and we couldn't seem to fix it. Much of this was very scary even though I was moving toward more joy. In the end, the results were wonderful. It's a big step, but following your bliss is a very important vitamin for your soul.

What do you love to do? You probably should be doing more of that. What do you hate to do? You probably should be doing less of that. At one point, when my business was already quite successful, I made a note of all the things I hated to do and all the things I loved to do. Guess what? All the things I loved to do were the things that made the most money for the business. They revolved around helping people, doing creative things, teaching my workshops, developing new products, and trading. Those were all things that made money.

I hated the day-to-day routine of managing the business and all the details that came with it. Although I still have some of those tasks, I have elected to find people who do a much better job with those things than I ever could. Now I concentrate totally on the things I love to do.

Make a list of what you love to do and what you dislike. If you love something, decide how you can do more of it. If you dislike something, determine how you can turn it over to someone else. You'll probably find that this simple act makes a tremendous difference in your life.

Commit to Love

I once attended a self-improvement workshop given by someone I considered very loving. Most of the workshop involved people bringing up problems, and he would lovingly help them release the problem. That was great, but I noticed that certain people would bring the same problem up over and over. In fact, one person, who might be described as a starving actor, had been to over 10 of those workshops and still was bringing up trivial stuff, almost as if he'd accomplished nothing. In fact, I'm sure he got in the workshop for free for being an assistant, but that means he probably brought up the same stuff over and over at each workshop. Nevertheless, the workshop guru laughed with him and gently took him through a release of his problem.

My initial thought was, "How can the instructor not react to this person's lack of progress?" Then, he told me the secret. The secret was to love the person as he was. This means that he has no emotional investment in whether the person makes a change. He just loves the person, and that means he can respond lovingly no matter what happens. When I understood that, I really began to understand unconditional love.

This section is all about being loving. That means loving everything exactly as it is without making any judgments.

Most of our decisions are made from fear and worry. I can remember numerous times in the past when I might have noticed that a future workshop we were doing had a very low enrollment. My natural tendency would be to start to worry about that. What if no more people enroll? What if there are not enough enrollments to pay for speakers' fees, much less the hotel? But what if we cancel? Then we have a bad reputation with the hotel because they cannot rely on us. We also lose all the marketing money we've

already spent on the workshop. I could go on and on with that kind of dialogue and worry. When I do that, I'm operating out of fear, and that's not useful. Instead, I elect to operate from love.

One way to operate out of love is to declare who you are. For example, you might make a declaration that says: "I'm a loving, kind, compassionate man." Write it out! Memorize it and declare it to yourself so that it becomes second nature to you. When you make decisions, you'll then begin to say, "What does a loving, kind, compassionate man do in this situation?" He certainly doesn't make decisions that are based on fear. Instead, he bases decisions on love and compassion. Of course, the first thing that pops into my mind when I say that is, "How can I handle this situation so that everyone wins?" What more can I give to increase enrollment in this workshop? How can I add more value to this workshop so that more people can attend? Of course, those responses get a much different response than I would get by saying, "We're going to lose a lot of money here even if I cancel the workshop."

Here's your next assignment: Decide who you are, and make a commitment statement that reflects who you are. That statement might go something like this: "I'm a powerful, generous, kind leader" or "I'm a courageous, loving, compassionate woman." Write down whatever you think might fit you. Put it on a sheet of paper and memorize it. When you make decisions, read your personal declaration and act as if it were true. Once you've done that, make your decision. If you do it that way, you'll probably find that your results are much different in all aspects of your life.

Meditate and Listen

When the day's activities have ended, take time to meditate. Or if you prefer, you might begin the day with meditation—whichever feels better for you. I believe meditating is very important. Here we'll just consider it as a soul vitamin.

Sit in an upright posture with your feet on the floor (if you're sitting in a chair) or your legs crossed (if you're sitting on the floor). Breathe slowly and notice the air going into your lungs and filling them. Notice where the air seems to go. In fact, you might want to

control that by taking deep breaths and filling your lungs with air. Or perhaps you might want to allow your lungs to breathe by themselves as they have been doing for some time. Just notice what happens.

While you are noticing your breath, slow down or stop the chatter in your mind. Just concentrate on your breath. With practice, you'll get better and better at watching your breath. When you notice a lot of chatter going on, let it go and go back to watching your breath.

When you do this on a regular basis, you'll notice several things.

- First, you'll notice that you have a lot of chatter. That's great; just get it out of your system and allow yourself to quiet down. When stuff goes through your mind, notice that it's just the stuff of consciousness. It's not you at all; you are merely the awareness of that stuff going through your mind.

- Second, you might notice that you tend to fall asleep. If that's the case, great! You needed the sleep, and you get to refresh yourself with a little nap.

- You'll eventually notice that you are not the chatter in your head. Instead, you are the awareness of that chatter.

- Last, you might notice that you just slip into the space between your breaths.

From this space come forth creativity, contact with higher realms of consciousness, and messages you may need to hear. Just listen. My recommendation is that you do this for about 20 minutes each day for an entire week. At a minimum, I think you'll find that when you do this for a week, you'll start to become more creative. The creative ideas may not happen while you are meditating, but you may find them flooding in at other times and may find that they help you become a better trader.

And another benefit of meditation, if you spend enough time watching your thoughts, is that pretty soon you will realize two things:

Remember that your real goal in designing a trading system is to develop one that works well in one or two market types. That's pretty easy to do. As mentioned elsewhere in the book, the mistake most people make is to try to fit one system to multiple market types. You don't have to do that.

Start Thinking in Terms of Reward and Risk

One of the cardinal rules of good trading is always to have an exit point before you enter into a trade. This is your worst-case risk for the trade. It's the point at which you would say, "Something's not working with this trade, and I need to get out to preserve my capital."

Most sophisticated traders have some sort of exit criteria that they like. However, if you are a novice and don't know how to do this, I recommend 75% of your entry price if you are an equity trader. That is, if you buy a stock at $40, get out if the stock drops to $30 or below. If you are a futures trader, calculate the average true range over the last 20 days and multiply that result by three. If the contract drops to that level, you must get out of the position.

Your initial stop defines your initial risk. In the example of our $40 stock, your initial risk is $10 per share, and I call this risk $1R$, where R stands for risk. If you know your initial risk, you can express all your results in terms of your initial risk.

Say your initial risk is $10 per share. If you make a profit of $40 per share, you have a gain of $4R$. If you have a loss of $15 per share, you have a $1.5R$ loss. Losses bigger than $1R$ could occur when you have a sudden big move against you.

Let's look at a few more cases. If the stock goes up to $110, what's your profit in terms of R? Your profit is $100 and your initial risk is $10, and so you've made a $10R$ profit. This is interesting because portfolio managers like to talk about 10-baggers. By a *10-bagger*, they mean a stock that they bought at $10 per share that goes up to $100—in other words, a stock that goes up in value 10 times. However, I think a $10R$ gain is much more useful to think about and much easier to attain.

When our $1R$ loss was $10 per share, the stock had to go up by $100 to get a $10R$ gain. However, to fit the portfolio manager's definition of a 10-bagger, it would have had to go up 10 times the price you bought it for, rising from $40 per share to $400. What would that $360 gain be in terms of R multiples when your initial risk was $10? That's right: It would be a $36R$ gain.

As an exercise, look at all your closed trades last year and express them as *R* multiples. What was your initial risk? What was your total gain and total loss? What's the ratio of each profit or loss to the initial risk? If you didn't set your initial risk for your trades last year, use your average loss as a rough estimate of your initial risk.

Let's look at how eight trades might be expressed as ratios of the initial risk. Here we have three losses: $567, $1,333, and $454. The average loss is $785.67, and so we'll assume that this was the initial risk. (I hope you know the initial risk so that you won't have to use the average loss.) The ratios that we calculate are the *R* multiples for the trading system. This information is shown in Table 3-1.

TABLE 3-1 Expressing Profit or Loss as *R* Multiples

Position	Profit or Loss	*R* Multiple
1	$678	0.86*R*
2	$3,456	4.40*R*
3	($567)	−0.72*R*
4	$342	0.44*R*
5	$1,234	1.57*R*
6	$888	1.13*R*
7	($1,333)	−1.70*R*
8	($454)	−0.58*R*

When you have a complete *R*-multiple distribution for your trading system, there are a lot of things you can do with it. You can calculate the mean *R* multiple. The mean *R* multiple, what I call the *expectancy*, tells you what you can expect from your system on the average over many trades in terms of *R*.

"Mean" *R* Is the Expectancy

Although I recommend that you have a minimum of 30 trades before you attempt to determine the characteristics of your *R*-multiple distribution, we'll use the eight examples in the table. Here the mean *R* multiple is 0.68*R*. What does this tell you? The expectancy tells you that on the average you'll make 0.68*R* per trade. Thus, over 100 trades, you'll make about 68*R*.

The standard deviation tells you how much variability you can expect from your system's performance. In the sample our standard deviation was 1.86*R*. Typically, you can determine the quality of your system by the ratio of the expectancy to the standard deviation. In our small sample the ratio is 0.36, which is excellent. After 100 or so trades, I'd expect this ratio to be much smaller; however, if it remains above 0.25, we have an acceptable system.

Thinking about Reward and Risk throughout the Course of a Trade

Recently, I consulted with a fund manager who was a strong fundamentalist. He was really good at predicting when a strong, fundamentally based trade would start, and he was good at knowing at what price he was wrong about the trade. However, in my opinion, those were the only major things he had going for him. He didn't understand reward to risk, and he didn't understand the impact of position sizing strategies.

He predicted that if the Singapore dollar dropped below $1.80 (it was at $1.85), it would move to $1.20 over the next 10 years. Thus, he would be risking 5 cents for a potential move of $0.60 or a 5-to-1 reward-to-risk ratio. However, when the Singapore dollar reached $1.35 in early 2009, his stop was still at $1.80. Now he was risking $0.55 for a remaining potential move of $0.15. His reward-to-risk ratio was now 1 to 3.67—with his risk being more than three times his reward. And when he gave back 20 cents, his investors were shocked, even though he insisted he was still right about his prediction. He didn't understand that he should never let his reward-to-risk ratio fall below 1 to 1 throughout the trade.

Figure 3-2 shows what he should have done. When the price dropped below $1.70, he should have lowered his stop to break even. Then, he would have been risking only $0.10 of profit to make $0.50. Keeping his original stop would have given him a 3-to-1 reward-to-risk ratio.

Figure 3-2 **Using Exits to Maintain a Good Reward–to-Risk Ratio**

When the price formed a bottom at about $1.60 and started moving up, he should have moved his stop to $1.73. He then would have been risking $0.13 in profits to make an additional $0.40 and still would have had a 3-to-1 reward-to-risk ratio.

When the price moved to about $1.55, even though it was still moving down, he had a nice profit and should have locked in about half of that profit by putting his stop at about the $1.65 level. He would have been risking $0.10 to make $0.25—still a good reward-to-risk. But at this point he would have locked in a 1.5R profit.

After the Singapore dollar formed a based at about $1.55 and started moving down past $1.45, he could have lowered his stop to $1.56, risking $0.11 to make $0.25, which was still better than a 2-to-1 reward-to-risk ratio.

When the price hit $1.35 and started moving up, he could have lowered his stop to $1.45. He then could have had a profit potential of $0.15 and a risk of 0.10, which was still favorable. He would have eventually been stopped out at this level, but he would have locked in a profit of $0.35 or 3.5$R$.[3]

Had he kept his original stop, he would still be in the trade, but he would have been risking $0.40 to make $0.15, which doesn't make sense. In addition, he would be at risk of giving back a profit that had taken six years to accumulate. That's why you should think in terms of reward-to-risk ratios throughout the course of your trade.

Thinking about the Reward-to-Risk Ratio as the Exit in a Swing Trade

In Figure 3-1 on page 168, I showed you the trade in SLB after six days down with a 6-to-1 potential reward to risk. So what would happen in that trade if you kept the reward to risk in mind as an exit throughout the trade? For example, each day the trade opened higher. Thus, you could have put your stop under the low of the prior day. This would have meant that even after day 1 you would have had a small profit locked it. You can see from Figure 3-3 that this could have been done in this example.

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3 Currency trading usually is very short term and quoted in pips, but I elected to use this long-term example because it is very simple to understand and the fund manager did buy long-term positions in currencies.

able to take this position. This was a trick question, but you need to know when your position has way too much risk.

Example 4.   You are trading a dollar–Swiss franc forex trade. The Swiss franc is at 1.4627, and you want to put in a stop at 1.4549. That means that if the bid reaches that level, you'll have a market order and be stopped out. You have $200,000 on deposit with the bank and are willing to risk 2%. How many contracts can you buy?

Answer: Your R value is 0.0078, but a regular forex contract would be trading at $100,000, and so your stop would cost you $780. Your cash at risk ($C$) would be 2% of $200,000, or $4,000. Thus, your position size would be $4,000 divided by $780, or 5.128 contracts. You round down to the nearest whole contract level and purchase 5 contracts.

Position Sizing Basics

Until you know your system very well, I recommend that you risk a maximum of 1% of your equity on any one position. This means that 1R is converted to a position size that equals 1% of your equity. For example, if you have $100,000, you should risk $1,000 per trade. If the risk per share on trade 1 is $5, you'll buy 200 shares. If the risk per share on trade 2 is $25, you'll buy only 40 shares. Thus, the total risk of each position is now 1% of your account.

Let's see how that translates into successive trades in an account. On your first trade, with equity of $100,000, you would risk $1,000. Since it is a loser (as shown in Table 4-4), you'd now risk 1% of the balance, or $990. It's also a loser, and so you'd risk about 1% of what's left, or $980. Thus, you'd always be risking about 1% of your equity. Table 4-4 shows how that would work out with the sample of trades presented in Table 4-3.

TABLE 4-4   Results of Risking 1% in the Game

Equity	Trade	1% Risk	*R* Multiple	New Equity
$100,000.00	1	$1,000.00	−1	$99,000.00
$99,000.00	2	$990.00	−1	$98,010.00
$98,010.00	3	$980.10	−1	$97,029.90
$97,029.90	4	$970.30	−5	$92,178.41
$92,178.41	5	$921.78	−1	*$91,256.62*
$91,256.62	6	$912.57	10	**$100,382.30**
$100,382.30	7	$1,003.82	−1	$99,378.46
$99,378.46	8	$993.78	−1	$98,384.68
$98,384.68	9	$983.85	−1	*$97,400.83*
$97,400.83	10	$974.01	10	**$107,140.90**
$107,140.90	11	$1,071.41	−5	$101,783.90
$101,783.90	12	$1,017.84	−1	$100,766.00
$100,766.00	13	$1,007.66	−1	$99,758.37
$99,758.37	14	$997.58	−1	$98,760.78

TABLE 4-4 *(continued)*

Equity	Trade	1% Risk	*R* Multiple	New Equity
$98,760.78	15	$987.61	−1	$97,773.18
$97,773.18	16	$977.73	−1	$96,795.45
$96,795.45	17	$967.95	−1	$95,827.49
$95,827.49	18	$958.27	−1	$94,869.22
$94,869.22	19	$948.69	−1	$93,920.52
$93,920.52	20	$939.21	−1	$92,981.32
$92,981.32	21	$929.81	−1	$92,051.51
$92,051.51	22	$920.52	−1	*$91,130.99*
$91,130.99	23	$911.31	10	**$100,244.10**
$100,244.10	24	$1,002.44	−1	$99,241.65
$99,241.65	25	$992.42	10	**$109,165.80**
$109,165.80	26	$1,091.66	−1	$108,074.20
$108,074.20	27	$1,080.74	−1	$106,993.40
$106,993.40	28	$1,069.93	−5	*$101,643.70*
$101,643.70	29	$1,016.44	10	**$111,808.10**
$111,808.10	30	$1,118.08	10	**$122,988.90**

Remember that in this sample of trades you were up 24*R* at the end of the game. This suggests that you could be up about 24% at the end of the game. We're up 22.99%, so we almost made it. Equity peaks are shown in bold, and equity lows are shown in italics.

Because of the drawdowns that came early, you would survive. You have a low equity of about $91,130.99 after the long losing streak, but you are still in the game. At the end you would be up about 23%. Even though you risked 1% per trade and were up 24*R* at the end of the game, that doesn't mean you'd actually be up 24% at the end of the game. That would occur only if you'd risked 1% of your starting equity on each trade, which is a different position sizing algorithm.

You wouldn't win the game with this strategy because someone who does something incredibly risky, such as risking it all on the sixth trade, usually wins the game. The important point is that you'd survive, and your drawdown wouldn't be excessive.

Types of Equity Models

All the models you'll learn about in this book relate to the amount of equity in your account. These models suddenly can become much more complicated when you realize that there are three methods of determining equity. Each method can have a different impact on your exposure in the market and your returns. These methods include the core equity method, the total equity method, and the reduced total equity method.

So Many Ways to Calculate Equity

The *core equity method* is simple. When you open a new position, you simply determine how much you would allocate to that position in accordance with your position sizing method. Thus, if you had four open positions, your core equity would be your starting equity minus the amount allocated for each of the open positions.

Let's assume you start with an account of $50,000 and allocate 10% per trade. You open a position with a $5,000 position

sizing allocation, using one of the methods described in the following section, "Different Position Sizing Models." You now have a core equity of $45,000. You open another position with a $4,500 position sizing allocation; now you have a core equity of $40,500. You open a third position with an allocation of $4,050, and your new core equity is $36,450. Thus, you have a core equity position of $36,450 plus three open positions. In other words, the core equity method subtracts the initial allocation of each position and then makes adjustments when you close that position out. New positions always are allocated as a function of your current core equity.

If your method of allocation is percent risk, then the risk amount would be your allocation. Thus, if you bought 100 shares of a $100 stock with a stop at $95, your risk allocation would be $500. The total amount invested would be $10,000. But your allocation would just be the risk amount, not the total amount invested.

I first learned about the term *core equity* from a trader who was famous for his use of the market's money. This trader would risk a minimum amount of his own money when he first started trading. However, when he had profits, he'd call that market's money, and he would be willing to risk a much larger proportion of his profits. This trader always used a core equity method in his position sizing algorithm.

The *total equity method* is also very simple. The value of your account equity is determined by the amount of cash in your account plus the value of any open positions. For example, suppose you have $40,000 in cash plus one open position with a value of $15,000, one open position worth $7,000, and a third open position that has a value of $2,000. Your total equity is the sum of the value of your cash plus the value all your open positions. Thus, your total equity is $62,000.

Tom Basso, who taught me methods for maintaining a constant risk and a constant volatility, always used the total equity model. It makes sense! If you want to keep your risk constant, you want to keep the risk a constant percentage of your total portfolio value.

The *reduced total equity method* is a combination of the first two methods. It is like the core equity method in that the exposure allocated when you open a position is subtracted from the starting equity. However, it is different in that you also add back in any profit or reduced risk that you will receive when you move a stop in your favor. Thus, reduced total equity is equivalent to your core equity plus the profit of any open positions that are locked in with a stop or the reduction in risk that occurs when you raise your stop.[6]

Here's an example of reduced total equity. Suppose you have a $50,000 investment account. You open a position with a $5,000 position sizing allocation. Thus, your core equity (and reduced total equity) is now $45,000. Now suppose the underlying position moves up in value and you have a trailing stop. Soon you have only $3,000 in risk because of your new stop. As a result, your reduced total equity today is $50,000 minus your new risk exposure of $3,000, or $47,000.

The next day, the value drops by $1,000. Your reduced total equity is still $47,000 since the risk to which you are exposed if you get stopped out is still $47,000. It changes only when your stop changes to reduce your risk, lock in more profit, or close out a position.

The models briefly listed in the next section generally size positions in accordance with your equity. Thus, each model of calculating equity will lead to different position sizing calculations with each model.

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6 This is sometimes called the "reduced core equity method." However, that title doesn't make any sense to me, so I've renamed it.

TABLE 4-5 Position Sizing Optimizer Results

Optimizer Approach	Prob. of Objective (%)	Prob. of Run (%)	Avg Gain %	Med Gain %	Risk %
Max Return	1.1	98.7	10.7E+3	−72.4E+0	19.0
Med Return	46.3	27.5	175.0E+0	80.3E+0	2.7
Opt Retire	46.6	31.0	193.4E+0	77.9E+0	2.9
<1% Run	10.5	0.8	43.2E+0	37.0E+0	0.9
>0% Run	1.1	0.0	27.1E+0	24.6E+0	0.6
Retire-Run	37.9	11.1	93.8E+0	64.0E+0	1.7

The median ending equity is probably a better goal. This gives an average gain of 175% and a median gain of 80.3%. You have a 46.3% chance of meeting your goal and a 27.5% chance of ruin.

What if your objective is to have the largest percent chance of reaching the goal of making 100%? This is shown in the Optimum Retire row. It says that if we risk 2.9%, we have a 46.6% chance of reaching our goal. However, our median gain actually drops to 77.9% because we now have a 31% chance of ruin.

What if our objective is just under a 1% chance of ruin (being down 35%)? The simulator now suggests that we should risk 0.9% per trade. This gives us a 10.5% chance of reaching our goal but only a 0.8% chance of ruin.

You could have your objective be just above a 0% chance of ruin. Here the simulator says you could risk 0.6%. The risk is just above 0%, but the probability of reaching your objective of making 100% is now down to 1.7%.

Finally, you might want to use the risk percentage that gives you the largest probability difference between making 100% and not losing 35%. That turns out to be risking 1.7%. Here we have a 37.9% chance of reaching our objective and only an 11.1% chance of ruin. That's a difference of 26.8%. At the other risk levels given, it was 15% or less.

Just by using two different numbers—a goal of 100% and a ruin level of 35%—I came up with five legitimate position sizing strategies that just used a percent risk position sizing model.

I could set the goal to be anything from up 1% to up 1,000% or more. I could set the ruin level from anything from being down 1% to being down 100%. How many different objectives could you have? The answer is probably as many as there are traders/investors. How many different position sizing strategies might there be to meet those objectives? The answer is a huge, huge number.

We used only one position sizing strategy: percent risk. There are many different position sizing models and many different varieties of each model.

The Problems of the *R*-Multiple Simulator

Obviously, there are some huge advantages to simulating your system's *R*-multiple distribution to help you learn about that system easily. However, there are also some serious problems with *R* multiples. Unfortunately, nothing in the trading world is perfect. The problems, in my opinion, are as follows:

- *R* multiples measure performance on the basis of single trades but won't tell you what to expect when you have multiple trades on simultaneously.

- *R* multiples do not capture many of the temporal dependencies (correlations) among the markets (in fact, only the start date and stop date of a trade are extracted). Thus, you cannot see drawdowns that occur while a trade is still on and you are not stopped out (that is, by 1*R*).

- As with all simulations, *R*-multiple simulations are only as good as your sample distribution is accurate. You may have a good sample of your system's performance, but you never will have the true population. You probably have seen your worst loss or your best gain.

- *R* multiples are a superb way to compare systems when the initial risk is similar. However, they present some problems when one or more of the systems have a position sizing method built into the strategy, such as scale-in and scale-out models. In fact, in these conditions, you would have trouble determining the absolute performance of two different systems. As an example, compare two systems. System 1 opens the whole position at the initial entry point. System 2 opens only half the position at the initial entry point and the other half after the market moves in favor of the system by one volatility. If we get an excellent trade (say, a 20*R* move), the *R* multiple of system 1 will be better (bigger) than that of system 2 (larger profit and smaller total initial risk). However, if we get a bad trade that goes immediately against us and hits the initial exit stop, the

R multiple is the same for both systems, namely, -1. The fact that system 2 loses only half of the money system 1 loses is completely missed.

- The impact of position sizing techniques (like pyramids) that change the total initial risk of a trade are difficult to test with the concept of R multiples because the R-multiple distributions of the trading systems (with and without the position sizing technique) cannot be compared directly. One way to evaluate the money management technique is to divide the trading system into subsystems so that the subsystems are defined by the entry points and evaluate each subsystem separately. For instance, each pyramid could be treated as a subsystem.

- Since R multiples capture only a few of the temporal dependencies between markets, simulations using R multiples must be based on the assumption that the R multiples are statistically independent, which is not the case in reality. However, one can cluster trades according to their start date or stop date and thus try to introduce a time aspect into simulations. When you do this, the volatility and the drawdowns become considerably larger when the R multiples are blocked. In other words, simulations based on one trade at a time clearly produce results that are too optimistic (1) when you are trying to determine the performance of systems that generate multiple trades at the same time and (2) when you are trading multiple systems simultaneously.

People have asked about obtaining a trading system simulation tool, but we've elected not to make one available. All the problems listed above might not be known to or considered fully by someone who might use it.

Getting around the Problems of Simulation

To get around the problems with a simulator, I developed the System Quality Number (SQN). Generally, the higher the SQN, the more liberties you can take with position sizing strategies to meet your objectives. In other words, the higher the SQN is, the easier it is to meet your objectives. For example, I commented earlier on a trader who claimed to have a 1.5 ratio between the expectancy and the standard deviation of R in a currency trading system that generated nearly one trade each day.

Although I don't know if it is possible to develop such an incredible system, if he does have one, I have no doubt about his results: turning $1,300 into $2 million in a little over four months during a period when most of the world was having a terrible economic crisis.

In *The Definitive Guide to Position Sizing,* I was able to show how, with 31 different position sizing models (93 total since each can use any of the 3 equity models), it was possible to achieve your objectives easily from the SQN. Nevertheless, there are still precautions you must take because of the following:

1. You never know if your R-multiple distribution is accurate.

2. You never know exactly when the market type will change, which usually changes the SQN.

3. You have to account for multiple correlated trades. I did this with the SQN by assuming that the maximum risk was for the entire portfolio rather than for a single position.

Thus, in our example, with an average (at best) system and a ratio of the mean to the standard deviation of about 0.16, our best risk percentage was 1.7%. However, if we were to trade five positions at the same time, our risk per position probably would have to be reduced to about 0.35%. However, a Holy Grail system might allow us to risk 5% or more per position.

REDUCING MISTAKES AND USING OTHER WAYS TO MAKE MORE CONSISTENT PROFITS