



Fighting the scams, frauds and charlatans

The Original Turtle Trading Rules

ORIGINATURTLES.ORG

The Original Turtle Trading Rules



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Free Rules? Are you kidding?

Why are some of the Original Turtles giving away Rules for which others have charged thousands of dollars? Are these the actual Original Turtle Trading System rules?

You probably asked yourself the same questions: “Why would anyone give away the rules to the original Turtle Trading System? How can I be sure that these are the original Turtle Trading System rules as taught by Richard Dennis and William Eckhardt?” The answer to these questions lies in the origin of this project.

The Origin of the Free Rules Project

This project had its seed in various discussions among a few of the original Turtles, Richard Dennis, and others regarding the sale of the Turtle Trading System rules by a former turtle, and subsequently, on a website by a non-trader. It culminated in this document, which discloses the Original Turtle Trading Rules in their entirety, free of charge.

Richard Dennis and **William Eckhardt** were not consulted prior to the marketing of the Turtle Trading Rules and did not benefit in any way from the sale of the Turtle Rules they developed.

Why? Because many of us believed that we owed an obligation to Richard Dennis not to reveal the rules, even after our contractual 10 year secrecy pact ended in late 1993. For this reason, we did not look kindly upon the sale of those rules by a former turtle.

Further, we saw the sale on the web site as crass and opportunistic intellectual property theft, an act that, while technically not illegal, was certainly not honorable.

At the same time, having seen others try to follow these rules first-hand, I realized it was unlikely that their publication would result in very many people actually learning to

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trade like the Turtles. In fact, I knew that most of those who spent thousands to learn these heretofore secret rules would end up disappointed, for three reasons:

- The rules wouldn't be clear, since the people selling them didn't know how to trade.
- Even if they were clearly presented, the buyers probably wouldn't be able to follow the rules.
- Most of the Turtles are now trading even better rules.

The Ugly Truth about the System Sellers

I've been trading and hanging around trading circles since high school. One of the sad realities of the trading industry, and the futures trading industry in particular, is that there are far more people making money selling others' systems and "ways to make money trading," than there are people actually making money trading.

I won't go into specifics here, but those of us who actually trade for a living know the names of many "famous traders" who are famous as "traders," but that don't make money as traders. They make money selling new trading systems, seminars, home study courses, etc. Most of these so called "experts" can't trade and don't trade the systems that they sell.

Yes, this is also true of those selling the Turtle Trading Rules. Consider the major sellers: the first, a web site, TurtleTrader.com, and the second, a former turtle. Here's what they won't tell you:

TurtleTrader.com - A web site run mainly by one guy (an admittedly talented web marketer that also has a pharmacy site and a site that sells personality tests), turtletrader.com purports to have the actual Turtle Trading Rules, and will sell them to you for \$999.00. The site is filled with huge amounts of information about trading, and bills itself as the "No. 1 Source for Trend Following Worldwide."

What they don't tell you is that the site is run by a guy who doesn't even trade his own rules—or trade at all for that matter—and has never been a successful trader. Yet he purports to be an expert on the "Turtle Trading Rules," and on trend following!

You can get something close to the actual rules from this site, but you won't get any expert advice from the guy who runs it. All you will get is the regurgitation of advice from other traders that is not tempered by the experience of a successful trading career. Paying for advice from this source is a lot like hiring a blind guide.

In the final analysis, TurtleTrader.com is not any better than other scams and system selling hucksters he warns about. It is a site run by a guy who appears to me to be more

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interested in taking his customers' money than he is in their success with the system he sells; a site run by someone who misrepresents himself as an expert in trend following, yet doesn't mention that he doesn't trade.

The money-back guarantee is almost worthless; you have to keep a log of all your trades and prove that you made them in the markets by providing your brokerage statements. If you don't like the rules and want your money back, it seems exceedingly unlikely that you would open a trading account and then trade for a year just to get the refund.

Former Turtle - This individual, a former turtle, sells tapes, books, hotlines, videos, seminars, and more, for prices ranging from \$29.95 to \$2,500.

What the Former Turtle won't tell you is that he never made money as a turtle; in fact he didn't last a full year as a turtle before he was fired from the turtle program because he couldn't trade the Turtle System Rules successfully. He lost money while most of the other traders were making a lot of money.

The Former Turtle lends credence to the oft quoted maxim: "Those that can *do*, those that can't *teach*."

I haven't seen the seminar or read the books, but I can't imagine how someone who couldn't make money after having been taught directly by Richard Dennis can explain to others how to trade using the Turtle Trading Rules.

Rules You Won't Follow Don't Matter

What TurtleTrader.com and the Former Turtle don't tell you is that trading rules are only a small part of successful trading. The most important aspects of successful trading are confidence, consistency, and discipline.

Following Rules

As famous trader and father of the Turtles, Richard Dennis said: "I always say that you could publish my trading rules in the newspaper and no one would follow them. The key is consistency and discipline. Almost anybody can make up a list of rules that are 80% as good as what we taught our people. What they couldn't do is give them the confidence to stick to those rules even when things are going bad." – from Market Wizards, by Jack D. Schwager.

apply them consistently.

Rules that you can't or won't follow will not do you any good.

The Turtles had a lot of reasons to be confident in the rules they were given. For the most part, we had the confidence to follow them even during losing periods. Those who didn't consistently follow the rules didn't make money and were dropped from the program.

Traders who want to be successful will figure out a way to gain enough confidence in their own rules of trading to be able to

As original Turtles, we had it easy. We were given rules by some of the world's most successful and famous traders, Richard Dennis and his trading partner Bill Eckhardt. They taught us the rules and the reasons why we could trust those rules. Then we were placed into an open office with ten other traders who had been taught those same rules. In some respects it was easier to follow the rules than to *not* follow the rules.

On the whole, we had the confidence and the discipline to consistently apply the rules we were given. This was the secret of our success as traders.

Those who failed to follow the rules invariably failed as Turtles. Some of them decided they could make more money selling the Turtle rules than they did as Turtles.

The Genesis of the Project

Like many of the other Turtles, it always bothered me that some were making money off the work of Richard Dennis and Bill Eckhardt without their consent; that these secret-sellers had used the success of the Turtles to dupe others into spending thousands of dollars on products that were not what they appeared.

I had often thought that a great way to deal with this problem would be to give the Turtle Trading Rules away for free. Since others had already let the cat out of the bag, and since anyone who really wanted the rules could already get them by paying, it wouldn't violate my sense of fair play to reveal them.

So that is what we have done....with a slight twist.

While the rules are free, we respectfully ask that those who gain benefit from the rules and find them valuable send a donation supporting a charity in honor of Richard Dennis, Bill Eckhardt and the original Turtles. You can find a copy of the charities favored by the Turtles on the new web site: originalturtles.org.

Curtis Faith, an Original Turtle



The Turtle Experiment

Richard Dennis wanted to find out whether great traders are born or made.

The age old question: Nature or nurture?

In mid-1983, famous commodities speculator Richard Dennis was having an ongoing dispute with his long-time friend Bill Eckhardt about whether great traders were born or made. Richard believed that he could teach people to become great traders. Bill thought that genetics and aptitude were the determining factors.

In order to settle the matter, Richard suggested that they recruit and train some traders, and give them actual accounts to trade to see which one of them was correct.

They took out a large ad advertising positions for trading apprentices in Barron's, the Wall Street Journal and the New York Times. The ad stated that after a brief training session, the trainees would be supplied with an account to trade.

Trading was Teachable

"Trading was even more teachable than I imagined," he says. "In a strange sort of way, it was almost humbling." – Richard Dennis, Wall Street Journal.

Since Rich was probably the most famous trader in the world at the time, he received submissions from over 1000 applicants. Of these, he interviewed 80.

This group was culled to 10, which became 13 after Rich added three people he already knew to the list. We were invited to Chicago and trained for two weeks at the end of December, 1983, and began trading small accounts at the beginning of January. After we proved ourselves, Dennis funded most of us with \$500,000 to \$2,000,000 accounts at the start of February.

"The students were called the 'Turtles.' (Mr. Dennis, who says he had just returned from Asia when he started the program, explains that he described it to someone by saying, 'We are going to grow traders just like they grow turtles in Singapore.')" – Stanley W. Angrist, Wall Street Journal 09/05/1989

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The Turtles became the most famous experiment in trading history because over the next four years, we earned an average annual compound rate of return of 80%.

Yes, Rich proved that trading could be taught. He proved that with a simple set of rules, he could take people with little or no trading experience and make them excellent traders.

Continue reading. The complete set of the rules that Richard Dennis taught his trainees follows, starting with the next chapter.

A Complete Trading System

The Turtle Trading System was a Complete Trading System, one that covered every aspect of trading, and left virtually no decision to the subjective whims of the trader.

Most successful traders use a mechanical trading system. This is no coincidence.

A good mechanical trading system automates the entire process of trading. The system provides answers for each of the decisions a trader must make while trading. The system makes it easier for a trader to trade consistently because there is a set of rules which specifically define exactly what should be done. The mechanics of trading are not left up to the judgment of the trader.

If you know that your system makes money over the long run, it is easier to take the signals and trade according to the system during periods of losses. If you are relying on your own judgment during trading, you may find that you are fearful just when you should be bold, and courageous when you should be cautious.

If you have a mechanical trading system that works, and you follow it consistently, your trading will be consistent despite the inner emotional struggles that might come from a long series of losses, or a large profit. The confidence, consistency, and discipline afforded by a thoroughly tested mechanical system are the key to many of the most profitable traders' success.

The Turtle Trading System was a Complete Trading System. Its rules covered every aspect of trading, and left no decisions to the subjective whims of the trader. It had every component of a Complete Trading System.

The Components of a Complete System

A Complete Trading System covers each of the decisions required for successful trading:

- Markets - What to buy or sell
- Position Sizing - How much to buy or sell
- Entries - When to buy or sell
- Stops - When to get out of a losing position
- Exits - When to get out of a winning position
- Tactics - How to buy or sell

Markets – What to buy or sell

The first decision is what to buy and sell, or essentially, what markets to trade. If you trade too few markets you greatly reduce your chances of getting aboard a trend. At the same time, you don't want to trade markets that have too low a trading volume, or that don't trend well.

Position Sizing – How much to buy or sell

The decision about how much to buy or sell is absolutely fundamental, and yet is often glossed over or handled improperly by most traders.

How much to buy or sell affects both diversification and money management. Diversification is an attempt to spread risk across many instruments, and to increase the opportunity for profit by increasing the opportunities for catching successful trades. Proper diversification requires making similar, if not identical bets on many different instruments. Money management is really about controlling risk by not betting so much that you run out of money before the good trends come.

How much to buy or sell is the single most important aspect of trading. Most beginning traders risk far too much on each trade, and greatly increase their chances of going bust, even if they have an otherwise valid trading style.

Entries – When to buy or sell

The decision of when to buy or sell is often called the entry decision. Automated systems generate entry signals which define the exact price and market conditions to enter the market, whether by buying or selling.

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Stops – When to get out of a losing position

Traders who do not cut their losses will not be successful in the long term. The most important thing about cutting your losses is to predefine the point where you will get out *before* you enter a position.

Exits – When to get out of a winning position

Many “trading systems” that are sold as complete trading systems do not specifically address the exit of winning positions. Yet the question of when to get out of a winning position is crucial to the profitability of the system. Any trading system that does not address the exit of winning positions is not a Complete Trading System.

Tactics – How to buy or sell

Once a signal has been generated, tactical considerations regarding the mechanics of execution become important. This is especially true for larger accounts, where the entry and exit of positions can result in significant adverse price movement, or market impact.

Summary

Using a mechanical system is the best way to consistently make money trading. If you know that your system makes money over the long run, it is easier to take the signals and follow the system during periods of losses. If you rely on your own judgment, during trading you may find that you are fearful just when you should be courageous, or courageous when you should be fearful.

If you have a profitable mechanical trading system, and you follow it religiously, then your trading will be profitable, and the system will help you survive the emotional struggles that inevitably result from a long series of losses, or large profits.

The trading system that was used by the Turtles was a Complete Trading System. This was a major factor in our success. Our system made it easier to trade consistently, and successfully, because it did not leave important decisions to the discretion of the trader.

Markets: What the Turtles Traded

The Turtles traded liquid futures that traded on U.S. exchanges in Chicago and New York.

The Turtles were futures traders, at the time more popularly called commodities traders. We traded futures contracts on the most popular U.S. commodities exchanges.

Since we were trading millions of dollars, we could not trade markets that only traded a few hundred contracts per day because that would mean that the orders we generated would move the market so much that it would be too difficult to enter and exit positions without taking large losses. The Turtles traded only the most liquid markets.

Liquidity

The primary criterion used to determine the futures that could be traded by the Turtles was the liquidity of the underlying markets.

In general, the Turtles traded all liquid U.S. markets except the grains and the meats. Since Richard Dennis was already trading the full position limits for his own account, he could not permit us to trade grains for him without exceeding the exchange's position limits.

We did not trade the meats because of a corruption problem with the floor traders in the meat pits. Some years after the Turtles disbanded, the FBI conducted a major sting operation in the Chicago meat pits and indicted many traders for price manipulation and other forms of corruption.

The following is a list of the futures markets traded by the Turtles:

Chicago Board of Trade

- 30 Year U.S. Treasury Bond
- 10 Year U.S. Treasury Note

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New York Coffee Cocoa and Sugar Exchange

- Coffee
- Cocoa
- Sugar
- Cotton

Chicago Mercantile Exchange

- Swiss Franc
- Deutschmark
- British Pound
- French Franc
- Japanese Yen
- Canadian Dollar
- S&P 500 Stock Index
- Eurodollar
- 90 Day U.S. Treasury Bill

Comex

- Gold
- Silver
- Copper

New York Mercantile Exchange

- Crude Oil
- Heating Oil
- Unleaded Gas

The Turtles were given the discretion of not trading any of the commodities on the list. However, if a trader chose not to trade a particular market, then he was not to trade that market at all. We were not supposed to trade markets inconsistently.

Position Sizing

The Turtles used a volatility-based constant percentage risk position sizing algorithm.

Position sizing is one of the most important but least understood components of any trading system.

The Turtles used a position sizing algorithm that was very advanced for its day, because it normalized the dollar volatility of a position by adjusting the position size based on the dollar volatility of the market. This meant that a given position would tend to move up or down in a given day about the same amount in dollar terms (when compared to positions in other markets), irrespective of the underlying volatility of the particular market.

This is true because positions in markets that moved up and down a large amount per contract would have an offsetting smaller number of contracts than positions in markets that had lower volatility.

This volatility normalization is very important because it means that different trades in different markets tend to have the same chance for a particular dollar loss or a particular dollar gain. This increased the effectiveness of the diversification of trading across many markets.

Even if the volatility of a given market was lower, any significant trend would result in a sizeable win because the Turtles would have held more contracts of that lower volatility commodity.

Volatility – The Meaning of N

The Turtles used a concept that Richard Dennis and Bill Eckhardt called N to represent the underlying volatility of a particular market.

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N is simply the 20-day exponential moving average of the True Range, which is now more commonly known as the ATR. Conceptually, N represents the average range in price movement that a particular market makes in a single day, accounting for opening gaps. N was measured in the same points as the underlying contract.

To compute the daily true range:

$$\text{True Range} = \text{Maximum}(\mathbf{H} - \mathbf{L}, \mathbf{H} - \mathbf{PDC}, \mathbf{PDC} - \mathbf{L})$$

where:

H – Current High

L – Current Low

PDC – Previous Day's Close

To compute N use the following formula:

$$\mathbf{N} = \frac{(\mathbf{19} \times \mathbf{PDN} + \mathbf{TR})}{\mathbf{20}}$$

where:

PDN – Previous Day's N

TR – Current Day's True Range

Since this formula requires a previous day's N value, you must start with a 20-day simple average of the True Range for the initial calculation.

Dollar Volatility Adjustment

The first step in determining the position size was to determine the dollar volatility represented by the underlying market's price volatility (defined by its N).

This sounds more complicated than it is. It is determined using the simple formula:

$$\text{Dollar Volatility} = \mathbf{N} \times \text{Dollars per Point}$$

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Volatility Adjusted Position Units

The Turtles built positions in pieces which we called Units. Units were sized so that 1 N represented 1% of the account equity.

Thus, a unit for a given market or commodity can be calculated using the following formula:

$$\text{Unit} = \frac{\text{1\% of Account}}{\text{Market Dollar Volatility}}$$

or

$$\text{Unit} = \frac{\text{1\% of Account}}{\text{N} \times \text{Dollars per Point}}$$

Examples

Heating Oil HO03H:

Consider the following prices, True Range, and N values for March 2003 Heating Oil:

Date	High	Low	Close	True Range	N
11/1/2002	0.7220	0.7124	0.7124	0.0096	0.0134
11/4/2002	0.7170	0.7073	0.7073	0.0097	0.0132
11/5/2002	0.7099	0.6923	0.6923	0.0176	0.0134
11/6/2002	0.6930	0.6800	0.6838	0.0130	0.0134
11/7/2002	0.6960	0.6736	0.6736	0.0224	0.0139
11/8/2002	0.6820	0.6706	0.6706	0.0114	0.0137
11/11/2002	0.6820	0.6710	0.6710	0.0114	0.0136
11/12/2002	0.6795	0.6720	0.6744	0.0085	0.0134
11/13/2002	0.6760	0.6550	0.6616	0.0210	0.0138
11/14/2002	0.6650	0.6585	0.6627	0.0065	0.0134
11/15/2002	0.6701	0.6620	0.6701	0.0081	0.0131
11/18/2002	0.6965	0.6750	0.6965	0.0264	0.0138
11/19/2002	0.7065	0.6944	0.6944	0.0121	0.0137
11/20/2002	0.7115	0.6944	0.7087	0.0171	0.0139
11/21/2002	0.7168	0.7100	0.7124	0.0081	0.0136
11/22/2002	0.7265	0.7120	0.7265	0.0145	0.0136
11/25/2002	0.7265	0.7098	0.7098	0.0167	0.0138
11/26/2002	0.7184	0.7110	0.7184	0.0086	0.0135
11/27/2002	0.7280	0.7200	0.7228	0.0096	0.0133

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12/2/2002	0.7375	0.7227	0.7359	0.0148	0.0134
12/3/2002	0.7447	0.7310	0.7389	0.0137	0.0134
12/4/2002	0.7420	0.7140	0.7162	0.0280	0.0141

The unit size for the 6th of December, 2002 (using the N value of 0.0141 from the 4th of December), is as follows:

Heating Oil

N = 0.0141

Account Size = \$1,000,000

Dollars per Point = 42,000 (42,000 gallon contracts with price quoted in dollars)

$$\text{Unit Size} = \frac{0.01 \times \$1,000,000}{0.0141 \times 42,000} = 16.88$$

Since it isn't possible to trade partial contracts, this would be truncated to an even **16** contracts.

You might ask: "How often is it necessary to compute the values for N and the Unit Size?" The Turtles were provided with a Unit size sheet on Monday of each week that listed the N, and the Unit size in contracts for each of the futures that we traded.

The Importance of Position Sizing

Diversification is an attempt to spread risk across many instruments and to increase the opportunity for profit by increasing the opportunities for catching successful trades. To properly diversify requires making similar if not identical bets on many different instruments.

The Turtle System used market volatility to measure the risk involved in each market. We then used this risk measurement to build positions in increments that represented a constant amount of risk (or volatility). This enhanced the benefits of diversification, and increased the likelihood that winning trades would offset losing trades.

Note that this diversification is much harder to achieve when using insufficient trading capital. Consider the above example if a \$100,000 account had been used. The unit size would have been a single contract, since 1.688 truncates to 1. For smaller accounts, the granularity of adjustment is too large, and this greatly reduces the effectiveness of diversification.

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Units as a measure of Risk

Since the Turtles used the Unit as the base measure for position size, and since those units were volatility risk adjusted, the Unit was a measure of both the risk of a position, and of the entire portfolio of positions.

The Turtles were given risk management rules that limited the number of Units that we could maintain at any given time, on four different levels. In essence, these rules controlled the total risk that a trader could carry, and these limits minimized losses during prolonged losing periods, as well as during extraordinary price movements.

An example of an extraordinary price movement was the day after the October, 1987 stock market crash. The U.S. Federal Reserve lowered interest rates by several percentage points overnight to boost the confidence of the stock market and the country. The Turtles were loaded long in interest rate futures: Eurodollars, TBills and Bonds. The losses the following day were enormous. In some cases, 20% to 40% of account equity was lost in a single day. But these losses would have been correspondingly higher without the maximum position limits.

The limits were:

Level	Type	Maximum Units
1	Single Market	4 Units
2	Closely Correlated Markets	6 Units
3	Loosely Correlated Markets	10 Units
4	Single Direction – Long or Short	12 Units

Single Markets – A maximum of four Units per market.

Closely Correlated Markets – For markets that were closely correlated there could be a maximum of 6 Units in one particular direction (i.e. 6 long units or 6 short units). Closely correlated markets include: heating oil and crude oil; gold and silver; Swiss franc and Deutschmark; TBill and Eurodollar, etc.

Loosely Correlated Markets – For loosely correlated markets, there could be a maximum of 10 Units in one particular direction. Loosely correlated markets included: gold and copper; silver and copper, and many grain combinations that the Turtles did not trade because of positions limits.

Single Direction – The maximum number of total Units in one direction long or short was 12 Units. Thus, one could theoretically have had 12 Units long and 12 Units short at the same time.

The Turtles used the term **loaded** to represent having the maximum permitted number of Units for a given risk level. Thus, “loaded in yen” meant having the

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maximum 4 units of Japanese Yen contracts. Completely loaded meant having 12 Units. Etc.

Adjusting Trading Size

There will be times when the market does not trend for many months. During these times, it is possible to lose a significant percentage of the equity of the account.

After large winning trades close out, one might want to increase the size of the equity used to compute position size.

The Turtles did not trade normal accounts with a running balance based on the initial equity. We were given notional accounts with a starting equity of zero and a specific account size. For example, many Turtles received a notional account size of \$1,000,000 when we first started trading in February, 1983. This account size was then adjusted each year at the beginning of the year. It was adjusted up or down depending on the success of the trader as measured subjectively by Rich. The increase/decrease typically represented something close to the addition of the gains or losses that were made in the account during the preceding year.

The Turtles were instructed to decrease the size of the notional account by 20% each time we went down 10% of the original account. So if a Turtle trading a \$1,000,000 account was ever was down 10%, or \$100,000, we would then begin trading as if we had a \$800,000 account until such time as we reached the yearly starting equity. If we lost another 10% (10% of \$800,000 or \$80,000 for a total loss of \$180,000) we were to reduce the account size by another 20% for a notional account size of \$640,000.

There are other, perhaps better strategies for reducing or increasing equity as the account goes up or down. These are simply the rules that the Turtles used.

Entries

The Turtles used two related system entries, each based on Donchian's channel breakout system.

The typical trader thinks mostly in terms of the entry signals when thinking about a particular trading system. They believe that the entry is the most important aspect of any trading system.

They might be very surprised to find that the Turtles used a very simple entry system based on the Channel Breakout systems taught by Richard Donchian.

The Turtles were given rules for two different but related breakout systems we called System 1 and System 2. We were given full discretion to allocate as much of our equity to either system as we wanted. Some of us chose to trade all our equity using System 2, some chose to use a 50% System 1, 50% System 2 split, while others chose different mixes.

System 1 – A shorter-term system based on a 20-day breakout

System 2 – A simpler long-term system based on a 55-day breakout.

Breakouts

A breakout is defined as the price exceeding the high or low of a particular number of days. Thus a 20-day breakout would be defined as exceeding the high or low of the preceding 20 days.

Turtles always traded at the breakout when it was exceeded during the day, and did not wait until the daily close or the open of the following day. In the case of opening gaps, the Turtles would enter positions on the open if a market opened through the price of the breakout.

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System 1 Entry - Turtles entered positions when the price exceeded by a single tick the high or low of the preceding 20 days. If the price exceeded the 20-day high, then the Turtles would buy one Unit to initiate a long position in the corresponding commodity. If the price dropped one tick below the low of the last 20-days, the Turtles would sell one Unit to initiate a short position.

System 1 breakout entry signals would be ignored if the last breakout would have resulted in a winning trade. NOTE: For the purposes of this test, the last breakout was considered the last breakout in the particular commodity irrespective of whether or not that particular breakout was actually taken, or was skipped because of this rule. This breakout would be considered a losing breakout if the price subsequent to the date of the breakout moved 2N against the position before a profitable 10-day exit occurred.

The direction of the last breakout was irrelevant to this rule. Thus, a losing long breakout or a losing short breakout would enable the subsequent new breakout to be taken as a valid entry, regardless of its direction (long or short).

However, in the event that a System 1 entry breakout was skipped because the previous trade had been a winner, an entry would be made at the 55-day breakout to avoid missing major moves. This 55-day breakout was considered the Failsafe Breakout point.

At any given point, if you were out of the market, there would always be some price which would trigger a short entry and another different and higher price which would trigger a long entry. If the last breakout was a loser, then the entry signal would be closer to the current price (i.e. the 20 day breakout), than if it had been a winner, in which case the entry signal would likely be farther away, at the 55 day breakout.

System 2 Entry - Entered when the price exceeded by a single tick the high or low of the preceding 55 days. If the price exceeded the 55 day high, then the Turtles would buy one Unit to initiate a long position in the corresponding commodity. If the price dropped one tick below the low of the last 55 days, the Turtles would sell one Unit to initiate a short position.

All breakouts for System 2 would be taken whether the previous breakout had been a winner or not.

Adding Units

Turtles entered single Unit long positions at the breakouts and added to those positions at $\frac{1}{2}$ N intervals following their initial entry. This $\frac{1}{2}$ N interval was based on the actual fill price of the previous order. So if an initial breakout order slipped by $\frac{1}{2}$ N, then the new order would be 1 full N past the breakout to account for the $\frac{1}{2}$ N slippage, plus the normal $\frac{1}{2}$ N unit add interval.

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This would continue right up to the maximum permitted number of units. If the market moved quickly enough it was possible to add the maximum four Units in a single day.

Example:

Gold

N = 2.50

55 day breakout = 310

First Unit added	310.00
Second Unit	$310.00 + \frac{1}{2} 2.50$ or 311.25
Third Unit	$311.25 + \frac{1}{2} 2.50$ or 312.50
Fourth Unit	$312.50 + \frac{1}{2} 2.50$ or 313.75

Crude Oil

N = 1.20

55 day breakout = 28.30

First Unit added	28.30
Second Unit	$28.30 + \frac{1}{2} 1.20$ or 28.90
Third Unit	$28.90 + \frac{1}{2} 1.20$ or 29.50
Fourth Unit	$29.50 + \frac{1}{2} 1.20$ or 30.10

Consistency

The Turtles were told to be very consistent in taking entry signals, because most of the profits in a given year might come from only two or three large winning trades. If a signal was skipped or missed, this could greatly affect the returns for the year.

The Turtles with the best trading records consistently applied the entry rules. The Turtles with the worst records, and all those who were dropped from the program, failed to consistently enter positions when the rules indicated.

Stops

The Turtles used N-based stops to avoid large losses in equity.

There is an expression that, “There are old traders; and there are bold traders; but there are no old bold traders.” Traders that don’t use stops go broke.

The Turtles always used stops.

For most people, it is far easier to cling to the hope that a losing trade will turn around than it is to simply get out of a losing position and admit that the trade did not work out.

Let us make one thing very clear. Getting out of a losing position is absolutely critical. Traders who do not cut their losses will not be successful in the long term. Almost all of the examples of trading that got out of control and jeopardized the health of the financial institution itself, such as Barings, Long-term Capital Management, and others, involved trades that were allowed to develop into large losses because they were not cut short when they were small losses.

The most important thing about cutting your losses is to have predefined the point where you will get out, *before* you enter a position. If the market moves to your price, you must get out, no exceptions, every single time. Wavering from this method will eventually result in disaster.

Turtle Stops

Having stops didn’t mean that the Turtles always had actual stop orders placed with the broker.

Since the Turtles carried such large positions, we did not want to reveal our positions or our trading strategies by placing stop orders with brokers. Instead, we were encouraged to have a particular price, which when hit, would cause us to exit our positions using either limit orders, or market orders.

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These stops were non-negotiable exits. If a particular commodity traded at the stop price, then the position was exited; each time, every time, without fail.

Stop Placement

The Turtles placed their stops based on position risk. No trade could incur more than 2% risk.

Since 1 N of price movement represented 1% of Account Equity, the maximum stop that would allow 2% risk would be 2 N of price movement. Turtle stops were set at 2 N below the entry for long positions, and 2 N above the entry for short positions.

In order to keep total position risk at a minimum, if additional units were added, the stops for earlier units were raised by $\frac{1}{2}$ N. This generally meant that all the stops for the entire position would be placed at 2 N from the most recently added unit. However, in cases where later units were placed at larger spacing either because of fast markets causing skid, or because of opening gaps, there would be differences in the stops.

For example:

Crude Oil

N = 1.20

55 day breakout = 28.30

	<u>Entry Price</u>	<u>Stop</u>
First Unit	28.30	25.90

	<u>Entry Price</u>	<u>Stop</u>
First Unit	28.30	26.50
Second Unit	28.90	26.50

	<u>Entry Price</u>	<u>Stop</u>
First Unit	28.30	27.10
Second Unit	28.90	27.10
Third Unit	29.50	27.10

	<u>Entry Price</u>	<u>Stop</u>
First Unit	28.30	27.70
Second Unit	28.90	27.70
Third Unit	29.50	27.70
Fourth Unit	30.10	27.70

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Case where fourth unit was added at a higher price because the market opened gapping up to 30.80:

	<u>Entry Price</u>	<u>Stop</u>
First Unit	28.30	27.70
Second Unit	28.90	27.70
Third Unit	29.50	27.70
Fourth Unit	30.80	28.40

Alternate Stop Strategy – The Whipsaw

The Turtles were told of an alternate stop strategy that resulted in better profitability, but that was harder to execute because it incurred many more losses, which resulted in a lower win/loss ratio. This strategy was called the Whipsaw.

Instead of taking a 2% risk on each trade, the stops were placed at $\frac{1}{2}$ N for $\frac{1}{2}\%$ account risk. If a given Unit was stopped out, the Unit would be re-entered if the market reached the original entry price. A few Turtles traded this method with good success.

The Whipsaw also had the added benefit of not requiring the movement of stops for earlier Units as new Units were added, since the total risk would never exceed 2% at the maximum four Units.

For example, using Whipsaw stops, the Crude Oil entry stops would be:

Crude Oil

N = 1.20

55 day breakout = 28.30

	<u>Entry Price</u>	<u>Stop</u>
First Unit	28.30	27.70

	<u>Entry Price</u>	<u>Stop</u>
First Unit	28.30	27.70
Second Unit	28.90	28.30

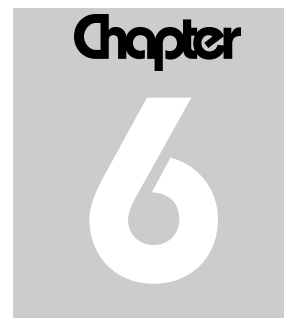
	<u>Entry Price</u>	<u>Stop</u>
First Unit	28.30	27.70
Second Unit	28.90	28.30
Third Unit	29.50	28.90

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	<u>Entry Price</u>	<u>Stop</u>
First Unit	28.30	27.70
Second Unit	28.90	28.30
Third Unit	29.50	28.90
Fourth Unit	30.10	29.50

Benefits of the Turtle System Stops

Since the Turtle's stops were based on N, they adjusted to the volatility of the markets. More volatile markets would have wider stops, but they would also have fewer contracts per Unit. This equalized the risk across all entries and resulted in better diversification and a more robust risk management.



Exits

The Turtles used breakout based exits for profitable positions.

There is another old saying: “you can never go broke taking a profit.” The Turtles would *not* agree with this statement. Getting out of winning positions too early, i.e. “taking a profit” too early, is one of the most common mistakes when trading trend following systems.

Prices never go straight up; therefore it is necessary to let the prices go against you if you are going to ride a trend. Early in a trend this can often mean watching decent profits of 10% to 30% fade to a small loss. In the middle of a trend, it might mean watching a profit of 80% to 100% drop by 30% to 40%. The temptation to lighten the position to “lock in profits” can be very great.

The Turtles knew that where you took a profit could make the difference between winning and losing.

The Turtle System enters on breakouts. Most breakouts do not result in trends. This means that most of the trades that the Turtles made resulted in losses. If the winning trades did not earn enough on average to offset these losses, the Turtles would have lost money. Every profitable trading system has a different optimal exit point.

Consider the Turtle System; if you exit winning positions at a 1 N profit while you exited losing positions at a 2 N loss you would need twice as many winners to offset the losses from the losing trades.

There is a complex relationship between the components of a trading system. This means that you can't consider the proper exit for a profitable position without considering the entry, money management and other factors.

The proper exit for winning positions is one of the most important aspects of trading, and the least appreciated. Yet it can make the difference between winning and losing.

Turtle Exits

The **System 1 exit** was a 10 day low for long positions and a 10 day high for short positions. All the Units in the position would be exited if the price went against the position for a 10 day breakout.

The **System 2 exit** was a 20 day low for long positions and a 20 day high for short positions. All the Units in the position would be exited if the price went against the position for a 20 day breakout.

As with entries, the Turtles did not typically place exit stop orders, but instead watched the price during the day, and started to phone in exit orders as soon as the price traded through the exit breakout price.

These are Difficult Exits

For most traders, the Turtle System Exits were probably the single most difficult part of the Turtle System Rules. Waiting for a 10 or 20 day new low can often mean watching 20%, 40% even 100% of significant profits evaporate.

There is a very strong tendency to want to exit earlier. It requires great discipline to watch your profits evaporate in order to hold onto your positions for the really big move. The ability to maintain discipline and stick to the rules during large winning trades is the hallmark of the experienced successful trader.

Tactics

Miscellaneous guidelines to cover the rest of trading the Turtle System Rules.

The famous architect Mies van der Rohe, when speaking about restraint in design, once said: “God is in the details.” This is also true of trading systems.

There are some important details which remain that can make a significant difference in the profitability of your trading when using the Turtle Trading Rules.

Entering Orders

As has been mentioned before, Richard Dennis and William Eckhardt advised the Turtles not to use stops when placing orders. We were advised to watch the market and enter orders when the price hit our stop price.

We were also told that, in general, it was better to place limit orders instead of market orders. This is because limit orders offer a chance for better fills and less slippage than do market orders.

Any market has at all times a bid and an ask. The bid is the price that buyers are willing to buy at, and the ask is the price that sellers are willing to sell at. If at any time the bid price becomes higher than the ask price, trading takes place. A market order will always fill at the bid or ask when there is sufficient volume, and sometimes at a worse price for larger orders.

Typically, there is a certain amount of relatively random price movement that occurs, which is sometimes known as the bounce. The idea behind using limit orders is to place your order at the lower end of the bounce, instead of simply placing a market order. A limit order will not move the market if it is a small order, and it will almost always move it less if it is a larger order.

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It takes some skill to be able to determine the best price for a limit order, but with practice, you should be able to get better fills using limit orders placed near the market than with market orders.

Fast Markets

At times, the market moves very quickly through the order prices, and if you place a limit order it simply won't get filled. During fast market conditions, a market can move thousands of dollars per contract in just a few minutes.

During these times, the Turtles were advised not to panic, and to wait for the market to trade and stabilize before placing their orders.

Most beginning traders find this hard to do. They panic and place market orders. Invariably they do this at the worst possible time, and frequently end up trading on the high or low of the day, at the worst possible price.

In a fast market, liquidity temporarily dries up. In the case of a rising fast market, sellers stop selling and hold out for a higher price, and they will not re-commence selling until after the price stops moving up. In this scenario, the asks rise considerably, and the spread between bid and ask widens.

Buyers are now forced to pay much higher prices as sellers continue raising their asks, and the price eventually moves so far and so fast that new sellers come into the market, causing the price to stabilize, and often to quickly reverse and collapse partway back.

Market orders placed into a fast market usually end up getting filled at the highest price of the run-up, right at the point where the market begins to stabilize as new sellers come in.

As Turtles, we waited until some indication of at least a temporary price reversal before placing our orders, and this often resulted in much better fills than would have been achieved with a market order. If the market stabilized at a point which was past our stop price, then we would get out of the market, but we would do so without panicking.

Simultaneous Entry Signals

Many days as traders there was little market movement, and little for us to do besides monitor existing positions. We might go for days without placing a single order. Other days would be moderately busy, with signals occurring intermittently over the stretch of a few hours. In that case, we would simply take the trades as they came, until they reached the position limits for those markets.

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Then there were days when it seemed like everything was happening at once, and we would go from no positions, to loaded, in a day or two. Often, this frantic pace was intensified by multiple signals in correlated markets.

This was especially true when the markets gapped open through the entry signals. You might have a gap opening entry signal in Crude Oil, Heating Oil and Unleaded Gas all on the same day. With futures contracts, it was also extremely common for many different months of the same market to signal at the same time.

Buy Strength – Sell Weakness

If the signals came all at once, we always bought the strongest markets and sold short the weakest markets in a group.

We would also only enter one unit in a single market at the same time. For instance, instead of buying February, March and April Heating Oil at the same time, we would pick the one contract month that was the strongest, and that had sufficient volume and liquidity.

This is very important! Within a correlated group, the best long positions are the strongest markets (which almost always outperform the weaker markets in the same group). Conversely, the biggest winning trades to the short side come from the weakest markets within a correlated group.

As Turtles, we used various measures to determine strength and weakness. The simplest and most common way was to simply look at the charts and figure out which one “looked” stronger (or weaker) by visual examination.

Some would determine how many N the price had advanced since the breakout, and buy the market that had moved the most (in terms of N).

Others would subtract the price 3 months ago from the current price and then divide by the current N to normalize across markets. The strongest markets had the highest values; the weakest markets the lowest.

Any of these approaches work well. The important thing is to have long positions in the strongest markets and short positions in the weakest markets.

Rolling Over Expiring Contracts

When futures contracts expire, there are two major factors that need to be considered before rolling over into a new contract.

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First, there are many instances when the near months trend well, but the more distant contracts fail to display the same level of price movement. So don't roll into a new contract unless its price action would have resulted in an existing position.

Second, contracts should be rolled before the volume and open interest in the expiring contract decline too much. How much is too much depends on the unit size. As a general rule, the Turtles rolled existing positions into the new contract month a few weeks before expiration, unless the (currently held) near month was performing significantly better than farther out contract months.

Finally

That concludes the Complete Turtle Trading System rules. As you are probably thinking, they are not very complicated.

But knowing these rules is not enough to make you rich. You have to be able to follow them.

Remember what Richard Dennis said: "I always say that you could publish my trading rules in the newspaper and no one would follow them. The key is consistency and discipline. Almost anybody can make up a list of rules that are 80% as good as what we taught our people. What they couldn't do is give them the confidence to stick to those rules even when things are going bad." – From *Market Wizards*, by Jack D. Schwager.

Perhaps the best evidence that this is true is the performance of the Turtles themselves; many of them did not make money. This was not because the rules didn't work; it was because they could not and did not follow the rules. By virtue of this same fact, few who read this document will be successful trading the Turtle Trading Rules. Again; this is not because the rules don't work. It is because the reader simply won't have the confidence to follow them.

The Turtle rules are very difficult to follow because they depend on capturing relatively infrequent large trends. As a result, many months can pass between winning periods; at times even a year or two. During these periods it is easy to come up with reasons to doubt the system, and to stop following the rules:

What if the rules don't work anymore? What if the markets have changed?

What if there is something important missing from the rules?

How can I be really sure that this works?

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One member of the first Turtles class, who was fired from the program before the end of the first year, suspected early on that information had been intentionally withheld from the group, and eventually became convinced that there were hidden secrets

The Shep's Trading Rule

"You can break the rules and get away with it. Eventually, the rules break you for not respecting them." – From Zen in the Markets, by Edward A. Toppel

which Rich would not reveal. This particular trader could not face up to the simple fact that his poor performance was due to his own doubts and insecurities, which resulted in his inability to follow the rules.

Another problem is the tendency to want to change the rules. Many of the Turtles, in an effort to reduce the risk of trading the system, changed the rules in subtle ways which sometimes had the opposite of the desired effect.

An example: Failing to enter positions as quickly as the rules specify (1 unit every $\frac{1}{2}$ N). While this may seem like a more conservative approach, the reality could be that, for the type of entry system the Turtles used, adding to positions slowly might increase the chance that a retracement would hit the exit stops—resulting in losses—whereas a faster approach might allow the position to weather the retracement without the stops being hit. This subtle change could have a major impact on the profitability of the system during certain market conditions.

In order to build the level of confidence you will need to follow a trading system's rules, whether it is the Turtle System, something similar, or a completely different system, it is imperative that you personally conduct research using historical trading data. It is not enough to hear from others that a system works; it is not enough to read the summary results from research conducted by others. You must do it yourself.

Get your hands dirty and get directly involved in the research. Dig into the trades, look at the daily equity logs, get very familiar with the way the system trades, and with the extent and frequency of the losses.

It is much easier to weather an 8 month losing period if you know that there have been many periods of equivalent length in the last 20 years. It will be much easier to add to positions quickly if you know that adding quickly is a key part of the profitability of the system.

Further Study

Where do you go from here? There is no substitute for experience.

The humorist Barry Le Platner said: “Good judgment comes from experience, and experience comes from bad judgment.”

If you want to become a trader, you must start to trade. There is no substitute. You must also make mistakes.

Making mistakes is part of trading. If you don’t start trading using actual money—and enough money that it affects you when you win or lose—you won’t learn all the lessons of trading.

Experience

“Experience is that marvelous thing that enables you to recognize a mistake when you make it again.” - Franklyn P. Jones.

Paper trading is not a substitute for trading with real money. If you aren’t using real money, you won’t learn how hope, fear, and greed affect you personally.

At the same time, it is important to get a thorough understanding of the fundamentals of trading. Armed with this knowledge you will make fewer mistakes, and you will learn much more quickly from the mistakes that you do make.

Here are some suggested areas for further study:

Trading Psychology

Trading psychology is the most important aspect of trading, and understanding yourself and your own personality as it relates to your trading is critical. This journey is much more about making a sincere and open-minded attempt to understand your own personal psychology than it is about finding the magic psychology book with all the answers.

Money Management

Money Management is the most important aspect of a mechanical trading system. Controlling risk in a manner that will allow you to continue trading through the inevitable bad periods, and survive to realize the profit potential of good systems, is absolutely fundamental. Yet, the interplay between entry signals, exits and money management is often non-intuitive. Study and Research into the state-of-the-art in money management will pay enormous dividends.

Trading Research

There is no substitute for statistically valid historical research when developing mechanical trading systems. In practice, this means learning how to program a computer to run simulations of trading system performance.

There is a lot of good information on curve-fitting, over-optimization, trading statistics and testing methodologies on the web and in books, but the information is a bit hard to find amongst the hype and bull. Be skeptical, but keep an open mind, and your research will pay off.

Final Warning

There are a lot of individuals who try to sell themselves and their advice as “expert.” Don’t blindly accept the advice of these self-proclaimed experts. The best advice comes from those who aren’t selling it, and who make their money trading. There are many books and biographies that give insights into the habits of those who have been—or who are—successful traders.

Learning how to become a good trader—or even an excellent trader—is possible, but it requires a lot of hard work and a healthy dose of skepticism. For those of us who have chosen this path, the journey never ends. Those who continue to be successful will never reach their destination, but will learn to find joy in the journey itself.