

Frustrations of a Well Intentioned Trader
or
Seeing Both Sides of *Every* Trading Issue

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Background

My Situation

- Math/statistics background
- Worked in Silicon Valley as a software engineer for ~20 years
- Trading options since 2005
- Did not trade when I was teaching English in China from 2010-2013 and 2015-2018
- Been trading more seriously since returning from China in 2018 to present (Apr 2020)
- Use ThinkOrSwim (ToS)

Basic Problem

- My trading has not been profitable
- Mostly sell positive theta/negative vega out-of-the money verticals
- Options on highly liquid underlyings

Can Trading Be...?

- Profitable
- Repeatable
- Fun
- Done in limited time

Blame the Market vs. Take Responsibility

- It is not useful to blame others or the market
- Taking responsibility is needed, but that does not make me profitable

Discussion Questions for Each Frustration/Slide

- Have you *experienced* this frustration?
- Can you *identify with* this frustration in your own trading?
- *How often* are you frustrated by this problem?
- Is this frustration *un/controllable*? (systemic vs. unsystematic risk)
- Can this frustration be *overcome*?
- *What can be done* to overcome this frustration?
- Am I *thinking wrong* about this frustration?

Topics Covered

- Others
- Edge
- Grind to Losses
- Slippage/Costs of Trading
- Trading Systems
- So Many Unknowns
- Capital Allocation
- Trading Wisdom
- Psychology
- Final Questions

Others

"The more you know,
the more you know you don't know"

- No matter what I know, I feel I don't know enough.
- I know there are *much* more capable and profitable traders than me.

Is There a Secret Sauce?

- What are *they* not telling me?
- Is there a legal/legitimate *edge*?

I Have to Develop My Own Systems

- Matches my engineering/math/technical style
- Control what is included or excluded
- Be able to analyze system performance
- Leverage what did/not work
- Meaningful insights based on personal experience of development and implementation

Do Profits Abound for Others?

- Traders around me appear to be wildly profitable (e.g., minimum 30% on *account* per year, sometimes pushing 150%).
- Simple systems back tested by others on TradeStation show incredible returns, while visually verifying them on ToS shows very mixed results.
- Blind to loses?
 - TastyTrade focuses on closing winning trades
 - Rolling losers multiple times seeking credit to make up for losses

Other Peoples' Systems are Not Profitable for Me

- Yet, they claim they are making huge profits
- Many peoples' systems have a germ of a likely profitable/unique idea that I had not thought of
- But they are not described well enough to be profitable
- In many cases, in my opinion, many peoples' systems are much more discretionary than their mechanical claim
- Factors not (completely) described may explain their profitable performance

Competing Against... Lots of *Others*

- Big trading desks: JPM, GS
- Big firms in NY, Chicago, London, Hong Kong, etc.
- Market makers: Citadel, GTS, Virtu
- Mutual funds
- ETFs (indices, alpha)
- Proprietary trading firms
- High frequency traders
- Millions of knowledgeable retail traders

Edge

Reliable/Profitable System with Edge

- People with edge do not share it (e.g., Virtu)
- If their edge became known, people would trade against it, and the edge would disappear

Where's *My* Edge?

- Efficient market theory says there is no free money, which is removed through arbitrage
- (Yet:) High frequency traders execute arbitrage so quickly that retail traders never see it
- Without edge, long-term trading will take accounts to ruin
- Kelly's Criterion: Don't allocate *any* money to a trading system without edge
- *Edge* sources
 - Insider information (hello Martha Stuart): not going to use this
 - Refusing to trade without a profit, but required to trade at bid/ask (market makers): can not use this
- *No edge*
 - News
 - Binary events (earnings/Fed decisions): known time/unknown results, unknown direction (underlying goes down because good earnings were not good *enough*)
 - Advantage ("high reward/risk ratio" or "high probability" alone is not enough)
 - Advantage math calculates associated needed probability of profit to provide edge for given reward/risk ratio
 - Key: probability of profit is varying/unknown

How Does a *Rational Investor* Trade Options?

- Black-Scholes computes *fair value* of an option
- Option trading (vs. stock trading) gives *more dimensions* of trading
 - Delta: direction
 - Theta: time decay
 - Vega: volatility expansion or contraction
 - Rho: interest rates
- Conclusion: *No inherent edge* in option trading

Is Edge Found in Subjects I Don't Know/Understand?

- Asset allocation
- Option pricing models (beyond Black Scholes, binomial models)
- Volatility
 - skew/smile
 - time-varying volatility (GARCH)
- Underlyings
 - futures
 - currency/pairs
- Trade execution
- Programming/technology
 - Python
 - Data analysis

Where are the Profits?

- Opening
 - Too many gating conditions may result in no available trades
 - Belief that some underlyings are more likely to lead to profits, but are selection criteria really predictive?
 - Knowing max profit and max loss in defined risk (vertical) option trades is extremely helpful
 - But, vertical max loss often is more of a loss that should be taken given max profit and probability of profit at opening, per Advantage math
- Management
 - Based on probabilities
 - Options have a fixed span/expiration (useful in calculating probabilities)
 - Dynamic probability of trade winning: are probabilities of profit a sufficient trade management tool?
 - Example: open trade with 80% probability of win, close trade when probability of win drops to 50% (trade assumption: distinctly more than 50%/50% odds)
 - Example: open trade with 20% probability of win, close trade when probability of win rises to 50%
- Closing
 - When/conditions to close
 - Close portion or all of trade

Grind to Losses

Always Behind on...

- Learning
 - ~ Videos (tens): TastyTrade, MoneyShow, YouTube
 - ~ Books (hundreds)
 - ~ Articles (thousands)
- Logging (later)
- Analysis of gathered log data (later)
- Trade system development
 - ~ Specification
 - ~ Trial execution

Daily Trading Routine is Time Consuming (and not very revealing)

- During market
 - Market conditions: SPY, VIX, volume
 - Trade hunting based on multiple systems
 - Trading per rules and filling in logging template (typically 1 hour 30 minutes for one trade)
- Post market
 - Review of market
 - Search/logging of hits on multiple systems/indicators
 - Trade management logging
 - Today's closed trades
 - Open trades
 - Learning (above)
- Friday's post market: logging of all open but not expired real/simulated trades

Logging

- It is not good enough to look at the status of my positions
 - Need to analyze logged data to determine course of action: when to close with profit/loss
 - Need to have written rationale for course of action (did decisions lead to profits or losses?)
- Daily logging takes a lot of time
 - ToS does not provide easy method to gather desired data
 - So, ToS data is manually extracted and placed into files
- Applied to
 - Real trades
 - Simulated trades
- Frequency of logging
 - Daily logging while trade is open
 - Weekly logging after trade close and prior to expiration
- Content of logging (key subset)
 - Underlying: underlying price, bid/ask spread, volume, average volume, VIX-style implied volatility, IV rank
 - Options: price, bid/ask, volume, open interest, implied volatility (individual option), greeks
 - Trades: trade P/L, SPY-weighted delta, probability of profit by expiration
- Utility of logging: Dynamically exit trade based on probability of profit (dynamic Advantage math)
- Major question: Is there *real* information in logging/records, or is it correlated with P/L random walk?
- Difficulty: Have data is not the same as being able to analyze it, or analyzing it

Analysis of Gathered Log Data: Wish List

- Sample time periods: last expiration cycle, month, year, year-to-date
- Summary: combinations of
 - Time periods
 - Underlyings
 - Trading systems
- Typical questions
 - How many trades were executed in various time periods?
 - How many trades for each underlying were executed in various time periods?
 - How many trades were closed early at a loss which later turned to profit?
 - How many trades were closed early at a profit which later turned to loss?
 - How many trades executed in various time periods were winners or losers to determine probability of win?
 - For each trading system, what was the average win and average loss over a time period?
 - Which underlyings had the greatest/smallest profits/losses during various time periods/systems?
 - Which trading system was most profitable over the last expiration/year?

Slippage/Costs of Trading

Constant Drain of Bid/Ask (B/A) Spreads

- Problem: Good trading system can fail because stock or option bid/ask spreads consume profits
- Scan for *efficient* underlyings
 - Narrow B/A spreads for underlying (1 or 2 cents), ToS stock scanner or watchlist
 - Narrow B/A spread for options (< 10 cents), ToS individual option scanner
- B/A spreads can be controlled (or rejected) on opening
- B/A spreads can *not* be controlled on closing
 - B/A spreads nearer to the money are usually narrower
 - If market moves trade to quick profit, higher volatility may widen spreads and reduce profit

Buying Power

- Naked options are not appropriate for my retirement margin account nor for my risk tolerance
- Sell options and buy longs to cover
 - Vertical, rather than naked
 - Butterfly, rather than naked straddle
 - Iron condor, rather than naked strangle
- Cost of long option insurance is
 - higher closer to the short options
 - cheaper further away from the short options, wider wings increase potential credit and potential loss

Time to Place a Trade

- Me: 1:30 hour, including logging
- TastyTrade: "If it takes more than 25-30 seconds, then it's too long" (any necessary info is on platform)

Trading Systems

Mechanical/Rules vs. Discretionary Trading

- Arguments *against* mechanical/rules
 - How can you trade *irrational* markets as a *rational* trader? (efficient market hypothesis assumes everyone has all information immediately and that they all act rationally in response)
 - How can trading use repeating rules if there is no repeatable underlying behavior?
 - Are discretionary systems actually mechanical systems that are not clearly specified ("I can't tell you what I do, but watch me trade")
- Arguments *for* mechanical/rules
 - Mechanical systems are *known*, while discretionary systems are *unknown*
 - Mechanical systems' performance can be tracked
 - Mechanical systems can be back tested (dis/advantage?)

Trade Systems: Possibilities and Pitfalls

- I feel the need to find new/other trading systems, since my current systems are not profitable
- For every kernel of a new system that looks promising, I find faults/risks that cast doubt on profitability
- Visual check using open/close criteria on chart (don't have good back testing in ToS)
- Trials: Draft steps, trade each day to discover/fix problems

Properties of a System

- Trade assumption(s)
 - "volatility will fall"
 - "underlying will stay still"
- Risk allocation: Fraction of investable money, rules for scaling up/down
- Which underlyings are most effective for trading this system?
- What direction?
- Which options to trade? (expiration, delta, strike price)
- When/conditions to open?
- When/conditions to close?

How Much Implementation Experience is Enough to Know...

- Is a system is *profitable*?
- Is a system is profitable *enough*? (some say 30%/40%/50% on account per year is *not* enough)
- Can it be implemented more *efficiently*? (e.g., less time)
- If a system is not profitable after many trades (32/64/128)
 - Is it really not profitable, or does it need more trial runs?
 - Take lessons, and develop a new/different system
 - Abandon it

Implementation vs. Development

- Constantly question
 - Whether systems in development *will* be profitable?
 - Whether systems in use *are* profitable?
- For me, implementation is easier than development (well defined systems can be easily executed)
- How many (profitable) systems do I need?
- If I had *one* profitable system, I would simply implement it with confidence

So Many Unknowns

Stock Prices are a Random Walk

- Which factors can/not be controlled?
- Example: Developed *Prime Penny* random entry system to focus on random walk alone, using only trade management, yielded even results
- Random walk is common rationale against short-term/timing trading, reason for long term/dollar cost averaging investing

Too Many Considerations: Stock

- Small bid/ask spread: 1 or 2 cents (ToS scanner/watchlist)
- Earnings before/after option expiration
- Stock price
 - Minimum (\$30) to keep options premiums higher
 - Absolute (\$30-\$100 for normal trading)
 - Relative (at yearly lows/highs)
 - Spread trade relative to SPY (e.g. SPY-3BBY)
- Minimum average volume over 3 months

Too Many Considerations: Options

- Small bid/ask spread: less than 10 cents (ToS scanner)
- Option chains with \$1 or \$2.50 strike price differences
- Minimum option volume
- Minimum option open interest
- Penny option pricing
- Availability of weekly options
- Risk/benefit of intervening earnings/binary event
- Repeatability across trades
 - Credit received: about \$0.60 to \$0.90 (profit target: 0.5X of credit)
 - Risk: about \$300 less credit (credit/risk > 0.2)
 - Probability of profit: minimum 0.60 to 0.75

Looking Forward: Unknown Future

- You need to be more right about market's future at present than what the whole market believes market's future at present
- Underlying direction: Is 0.50 ATM delta correct? (in hindsight, it is so easy to claim it should *not* have been 50/50 at the time of opening)
- Implied Volatility (some claim IV is easier to predict than price due to mean reversion)
 - if low, it *may* go higher
 - if low, it *may* stay low for a long time
 - if high, it *may* go much higher (2007/2008, early 2020)
 - if high, it *may* crash suddenly

Looking Backward: Does Back Testing Work?

- Common (but false?) mantra: "Don't trade without verifying your system using backtesting"
- Back testing assumption: History repeats (to what degree?)
- Back testing is no guarantee
 - Early 1990s BASIC short interest system (first attempt at automated analysis): Worked in back test, but not in real trading
 - 2009-2011 RUT iron condor system with Corbin: Made money for 364 days, then lost all profits and more in 15 minute Chinese flash crash with stop losses
- Profitable historical back testing may lead to over allocation of capital in real trading (over reliance on Kelly Criteria)

History vs. Present

- History
 - Premise: What happened before can be used to make a prediction
 - How much history is relevant?
 - What happened last time(s) at this price level?
 - Prediction (e.g., regression) history windows: How short can history window be? Is more better?
- Present
 - Premise: Most recent is most relevant
 - Many math derivations depend on statistics with no memory (*martingale* stochastic process property)

Direction

- Momentum vs. Contrarian
 - Will momentum *turn into* contrarian?
 - Will contrarian *turn into* momentum?
- Support vs. Resistance: Will support or resistance be *broken*?
- Remove direction effect: Trade delta neutral

Direction, Direction, Direction: Options are Swiss Army Knife

- Up (buy call, sell put)
- Down (buy put, sell call)
- Both up and down (buy straddle or strangle)
- Non-directional/range bound (sell straddle, strangle, sell iron condor, buy butterfly)
- Key: Non-directional still has a *strong* directional assumption

Capital Allocation

Asset Allocation to Trading

- General wisdom: Each trade should be 1%-2% of account
- TastyTrade: "Trade small, trade often"
- "To make money you have to be a risk taker"
 - Some traders are 100% allocated
 - TastyTrade targets 30% of funds to naked short positions (not to my taste)
 - Effects of compounded profits can be impressive but most people focus on compounded winnings, not net profits (or losses)
- Kelly Criterion
 - Proportion of assets to be allocated to a trade increases with edge
 - With no edge, don't trade!

Diversification

- Benefit of Diversification: Distribute probability of profits/losses across different assets/classes/time frames/trading strategies
- Problem of Diversification: Generally non-correlated assets positively correlate with market during selloff (exactly when you *need* diversification)
- Questions
 - Will *more* of the diversified trades profit?
 - Will losses from a few trades *overwhelm* profits?
 - Never know which individual stock will be *stellar* winner (\$ in INTC in 1971 IPO would be worth \$\$\$ by now)

Traditional Wisdom

Enigma of Indicators

- Technical indicators *alone* are not trading systems
- Most popular technical indicators are *not* predictions
- General wisdom (T/F?): More frequent indicator hits are less reliable, while rare hits are more reliable
- Questions
 - Does an indicator hit imply a long or short trade? (direction)
 - Will the underlying move as predicted *this* time? (probability of win)
- Some indicators do/not work in different conditions: When are these conditions present? How to match indicators to different conditions?
 - Underlyings
 - Time frames
 - Market conditions: consolidating, trending
 - Volatility
 - Trade hold times (when to close?): Same indicator? Inverse of indicator? Another indicator?

"Cut Losers, Let Winners Run"

- Problems
 - Some losers turn into profits
 - Some winners have less gains or turn into losses later on
- When to cut losers: too many dimensions
 - Fraction of trade's max loss
 - Time remaining to end of trade or expiration (probability of win)
 - Dynamic Advantage math: Loss based on profit target and *current* probability of win
 - Underlying
 - Beware of *stop hunting*
 - Support/resistance (very subjective)
 - Indicators (above)
 - TastyTrade empirical study indicates stop losses are *not* effective (long option to protect short is enough)
- When to take winners: (simpler than losers?)
 - Reach target set at trade open (too much/little)
 - Fraction of trade's max profit/credit
 - Fear of losing profits in the future
 - Fear of missing out on greater profits in the future

To Hedge or Not to Hedge?

- *To hedge*
 - If a large proportion of one's assets are positive delta long-term retirement investments, then a small proportion of one's assets should be negative delta short-term option trading
 - We (assume) long-term investment returns are uncorrelated with short-term option trading
 - Short-Term Assumption: Underlying will *temporarily* go against the long-term delta holding
 - Questions
 - How much of a hedge? (compare cost/risk of hedge to assets being hedged)
 - When to open hedge?
 - When to close hedge?
 - How is a hedge different from any other trade?
- *Not to hedge*
 - If expected price movement is *opposite* to the direction of an existing trade, why *add* to total risk?
 - Instead, close some of the long-term holding, and add it back later when direction returns to direction of original trade

Always Too Late (e.g., Implied Volatility)

- When implied volatility (IV) is low, trade long vega, which occurs rarely
- When IV is high, trade short vega, which gets trounced by sudden huge directional moves due to higher IV
- To compensate for being on the wrong side, wait, but then you are late (again)

Psychology

Behavioral Finance

- Regret
 - Regret not being in a profitable trade
 - Regret not holding onto a profitable trade for more profits
 - Regret holding a losing trade for too long
- Fear
 - Fear of opening a losing trade
 - Fear of losing unrealized profits

Optimists vs. Pessimists

- Optimists
 - Correct
 - Have confidence to trade
 - Are trading the market so they have the possibility of profit
 - Incorrect
 - Unable to see trade risks
 - Don't take small losses because they think trade will turn around to profit
 - Don't take moderate profits because they think trade will become more profitable
- Pessimists
 - Correct
 - Take moderate profits/losses rather than always looking for outlier home runs moves
 - Take too small risk to profit from being right
 - Incorrect
 - Sources of risk can overwhelm possible profits (if you can't see the risk, you haven't look hard enough)
 - Too small profits do not make up for larger periodic loss

Winning and Losing

- So *many* ways to *lose* money (options examples)
 - Buy long delta trade, underlying rises, but volatility falls: lose money
 - Sell premium when VIX 40 (question: how can this lose???), but VIX rises to 80: lose money
 - Sell high IV immediately before earnings, yet delta movement immediately after earnings overwhelms correct volatility crush value boost: lose money
- So *few* ways to *make* money
 - Prior to expiration: need to be *concurrently* correct about
 - direction (most difficult)
 - volatility
 - time
 - At expiration
 - Need to be correct about direction
 - But, typically not holding to expiration due to gamma risk

Doing the *Right* Things Does *Not* Payoff

- Have a *written* process/plan
 - Develop a *repeatable* process
 - Use *quantitative* measurements to manage trading
- *Reduce* emotional trading: plan before market, execute during market
- Know when to get in
- Know when to get out *ahead* of time
 - With a profit
 - With a loss
- Keep records
 - Keep a trading log including performance metrics
 - Review trading log to learn from successes/failures

Every Market is *Very Strange*

- Never ending bull runs
- Volatility
 - Very low for a long time, when will it change?
 - Very high suddenly, when will it return to normal?

If I Only Knew...

- Future price direction (even tomorrow would be good enough!)
- Implied volatility increase/decrease
- Earnings results

Final Questions

Questions

- Are you as frustrated as I am?
- Am I looking at trading the wrong way?
- How are you making money?