An Outsider’s Education in Quantitative Trading

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R/Finance 2015
Background

• Entrepreneur
• Software Developer
• Telecom, VoIP, etc
• Formally trained in ... absolutely nothing
• Claim to fame: Twitter smart ass

Now what?
Wait, did someone say that I can trade from Austin, TX?
Tariten Trading

Started in 2010
Very small team
US equities focused
No outside capital
What people think I do when they learn that I do automated trading...
What it feels like...

I HAVE NO IDEA WHAT I'M DOING
And the reality...
A Typical Path to First Failure

(and 2\textsuperscript{nd}, 3\textsuperscript{rd}, 4\textsuperscript{th}, 5\textsuperscript{th}, 6\textsuperscript{th}, ... )
It can’t be that hard!
1. Source and explore some **bad** data.

2. Find confirmation of your preconceived notion.

3. Back test all the things.

4. Sort by PNL.
Trade the top performing backtests...
Y U NO

MAKE ALL THE MONEY!?
It’s kind of like...
You’re not going to backtest your way into being a trader.

Credit to a wise Kiwi who shall remain nameless.
As humans, we can only survive this cycle so many times before we give up.
Focus on the strategy

(the #1 thing people fail to do)

... including me
You find yourself in a dark hallway. There are no doors. You may go forward or quit.

> forward

Some unknown force kicked you in the stomach.

That hurt! You’re still in the dark hallway. You can’t see anything. You may go forward or quit.

> forward

What appears to be a troll punches you in the nose.

You’re nose is bleeding. The hallway seems to be getting darker. You may go forward or quit.

>
“Win or lose, everybody gets what they want out of the market. Some people seem to like to lose, so they win by losing money.”

Ed Seykota
Trading Legend
The technologists curse.

We revert to what we know, so we build infrastructure instead of strategies.
What We All Want
“Just like a pilot will do in a plane, our traders manage the autopilot. **They manage the algorithms. They tweak the settings continuously.** They’ll check if there is something happening that the algorithm may not be able to deal with in a correct manner. They manage the process.”

Remco Lenterman
Managing Director, IMC Financial Markets

“Traders: Millions by the Minute”. Season 1 Episode 1, approximately at 41:00. [https://www.youtube.com/watch?v=vyOulC3hxfM](https://www.youtube.com/watch?v=vyOulC3hxfM)
Once you’re lucky, twice you’re good, 1,331 times you must be cheating...

Holy. Cow.
Don’t Underestimate The Human Factor
HFT Profitability (Tradeworx)

- 5% market share in US equities
- 52-53% winning trades; 86% winning days; 99.9% winning weeks
- 10 minute average holding time
- $0.0006 / share edge

Trying to START here is not a good idea.

From data shared by Manoj Narang (former CEO) with Institutional Investor and CSFB. See: CSFB report “HFT 101 with Tradeworx”, May 2014
Do NOT mimic what you THINK other firms do.

They are faster
They have more data
Their edge is uniquely theirs
They probably do something else
“[I’m] supposed to fail. According to almost everyone, you have to approach systematic trading (and predictive modeling in general) from the framework of ‘Here is a valid hypothesis that makes sense within the context of the markets.’ Instead, I blindly search through the data.”

Jaffray Woodriff
Founder, Quantitative Investment Management

“Hedge Fund Market Wizards”, Jack Schwagger
The “Right Way” might be the wrong way. Plot your own path.
You are all alone out there...

Your search - **why does my stock market strategy lose money?** - did not match any documents.

Suggestions:

- Make sure all words are spelled correctly.
- Try different keywords.
- Try more general keywords.
- Try fewer keywords.
Work Within Your Constraints

- Personal
- Time
- Capital
- Cost Structure
- Technology
- Infrastructure (co-location, feeds, latency, etc)

Ignore this at your own peril.
Ruthlessly seek out optimal tradeoffs

(this can be a source of edge)
Why do quants fail when they go out on their own?

Everything else is really important too.
“The Art of Algo Strategy: Most developers don’t ask questions, most grey box traders can’t read code, and most quants think strategies are too simple to work.”

Haim Bodek
Managing Principal, Decimus Capital Markets
Order Type & Electronic Market Extraordinaire

Rephrased from Twitter. See: https://twitter.com/HaimBodek/status/594211781859414016
Market Data

- ~ 100 GB of new data each day
- Market data messages per day:
  - Depth of Book: 800 mm, 2 bn
  - Top of Book: 500 mm, 1 bn
- 23,400 trading seconds per day
- ~ 64k messages/second
- But, it’s highly clustered and “bursty”
It is possible for “more data” to be a bad thing.
Execution Matters (a lot)

• Numerous dark and lit venues
• Complex fee schedules
• Numerous order types
• Queue position:
  – 30-35% dark volume → lit venues get the exhaust
Cancel-Trade Ratio (via MIDAS)

Stocks: ~ 20:1

ETPs: ~ 90:1

http://www.sec.gov/marketstructure/
You’re not fast enough.

(but that’s ok!)
“There is a mythology that speed is central to success but **the reality is that the quantitative predictive aspect is the key to success.** Just trading fast doesn’t make you any money if it is the wrong trade. You need to know when to trade and then execute that order as quickly as you can.”

Cameron Smith  
President, Quantlab Financial

“Praising the Modern Markets”, Automated Trader Issue 36 Spring 2015  
http://www.automatedtrader.net/articles/first-person/153493/praising-the-modern-markets
Some Suggestions

- Read absolutely everything you can.
- Pick the most focused market niche you can.
- Make sure your data is good. Buy it.
- Focus on research. Forget production.
- Prove to yourself that your model has predictive power.

Everything else is easier if you can do this.
Thank you.

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