

# **The Sociology of Finance**

*When Genius Failed* - Revisited

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Myron Scholes

Robert C. Merton

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John W. Meriwether

Long-Term Capital Management

**The sociology of trading: some tentative observations (joint work with Iain Hardie).**

**Arbitrage, and how the sociology of trading may apply even to it.**

**The case of the arbitrageurs Long-Term Capital Management (LTCM): revisiting Roger Lowenstein, *When Genius Failed*.**

**Sociology of trading – trading behaviour is affected by matters such as:**

*relations amongst traders*

*relations between traders and managers or  
traders and hedge-fund investors*

*institutional and cultural setting – I won't discuss this, but see e.g. deliberate barriers to short selling such as the uptick rule in U.S. (and Japan).*

**Not staking out disciplinary “turf” for sociology: e.g. game theory could apply to much of what I’ll talk about; Shleifer & Vishny on limits of arbitrage.**

**SOCIAL ≠ IRRATIONAL**

**E.g. “behavioural finance” bias against realizing a loss and traders’ culture.**

**Humming the wedding march on the Chicago Board of Trade (Caitlin Zaloom).**

***“Chatter” (often by email) about markets:***

***[from investment bank] Mexico: The peso nearly reached our 11.45 recommendation target ...***

***[from individual at bank] ROP flying despite EM sell off and rates ....!!!!***

***[from individual at bank]*** Have seen some selling by HF as well as RM in Sov/Gazprom. Ukraine ... have seen buyers only.

***[from individual at bank]*** SUPPLY CONCERNS AND HAWKISH FOMC MINUTES CREATED QUITE A PANIC -- BUT IT FEELS A BIT OVERDONE IN OUR VIEW ... WE DID NOT SEE A SINGLE SELLER BELOW 116<sup>1/4</sup> ON 40s ... CLIENT FLOWS WILL BE KEY ...

***[from individual at bank]*** 5Y BRAZIL HAS TRADED AT 340 BPS 30 MM TIMES, 4 SELLERS/1 BUYER ...

***[from individual at bank]*** Relatively busy day. We net bought 50mm in protection in Col, Brz and Mex. During the sell-off, faster money sold CDX EM2 and we net bought 30mm. Against those buys, I am running some single name protection. At the end of the day, the index looked about .50 below theoretical after starting the day approx .30 below. We are slightly longer today thinking there may be a bounce.

***[from individual at bank]*** My bias in PHily will be to sell some this am ...

**“Chatterers” *could* lie, but generally don’t seem to (in order to protect reputation?). In consequence, professional traders often seem to have reasonably good information as to *who* is doing *what*.**

**Jacob Höglund et al., *Behaviour* 114  
(1990): 221-231.**

**A possible consequence of chatter:  
imitation of successful traders.**

**Orléan's room.**

*Trader-manager (bank) or trader-investor (hedge fund) relations.*

**How does manager/investor judge if trader competent?**

**“The white sheet [Profit&Loss sheet] doesn’t lie.”**

**Problem if trade shows losses before becoming profitable. Trader: white sheet *is* lying. Manager: trader “married.”**

*the first thing you do as a trading manager, is if I have a trader who’s losing money ... ‘just flatten it out. Because you are not right.*

*Doesn’t matter if your thinking is right, but your P&L is not right, just flatten it out. Don’t care what your position is, how logical it is ...’*

**Managers and investors may override the “white sheet” if they trust the trader. *Personal* reputations of traders matter. E.g. Meriwether able successfully to set up successor fund to LTCM. Frequent personal visits to investors by hedge fund managers.**

**Arbitrage is trading that exploits price discrepancies to make no-risk or low-risk profits by simultaneous or near-simultaneous:**

- **purchase of (relatively) under-priced asset**
- **sale of equivalent or similar (relatively) over-priced asset.**

## **Steve Ross:**

**I ... never thought that people ... were all that rational in their behavior ... that was never the point of financial theory ... Neoclassical finance is a theory of sharks [arbitrageurs] and not a theory of rational homo economicus ... In liquid securities markets ... profit opportunities bring about infinite discrepancies between demand and supply. Well financed arbitrageurs spot these opportunities, pile on, and by their actions they close aberrant price differentials ... Rational finance ... has worked very hard to rid the field of its sensitivity to the psychological vagaries of investors.**

**“Arbitrage pricing” of derivatives: the only stable price patterns are those that do not permit arbitrage profits.**

**E.g. Black-Scholes-Merton option pricing:**

$$\frac{\partial w}{\partial t} = r w - r x \frac{\partial w}{\partial x} - \frac{1}{2} \sigma^2 x^2 \frac{\partial^2 w}{\partial x^2}$$

**where  $w$  is European option price,  $x$  is price of stock (which pays no dividends),  $\sigma$  is volatility of stock,  $r$  is riskless rate of interest, and  $t$  time.**

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***European option:* a contract that confers the right, but not the obligation, to buy (“call”) or sell (“put”) an asset at a set price at a given point in time in the future.**

***Riskless rate:* the rate of interest paid by a borrower who creditors are certain will not default.**

***Volatility:* the extent of the fluctuations of the price of an asset (the annualized standard deviation of continuously-compounded returns on the asset).**

*How the sociology of trading may apply even to arbitrage:*

**Some arbitrage trading (e.g. index arbitrage, options arbitrage) often incurs losses because relative prices diverge further before they converge.**

**Managers/investors may thus need to be convinced that white sheet is (temporarily) lying.**

**Sometimes they cannot be convinced, even in simple arbitrages such as index arbitrage (H. Miyazaki, *American Anthropologist* 105 [2003]: 255-265).**

**The risk of arbitrage trades having to be abandoned at a loss may limit arbitrage's capacity to close price discrepancies.**

**Risk of *aggregate* losses by a fund or trading desk (which is, e.g., what hedge fund investors will care about) could in principle be minimized by diversification of arbitrage trades.**

**Diversification may however be undermined by arbitrageurs imitating each other or imitating single prominent arbitrageur.**

**LTCM often accused of reckless risk-taking and, crucially, of blind faith in mathematical models. Over-fascination with theme of “Nobel laureates fall to earth.” E.g. Lowenstein:**

**“The professors’ conceit was to think that models could forecast the limits of behavior. ... No self-doubt tempered them. ... The next time a Merton proposes an elegant model to manage risks and foretell odds ... investors should run – and quickly – the other way.”**

**LTCM's core business - "convergence" and "relative value" arbitrage. E.g.:**

- ***on-the-run* bonds (e.g. newly-issued 30-year) command price premium over *off-the-run* (e.g. 29<sup>1</sup>/<sub>2</sub> year) that is greater than implied by differences in future cash flow. Short sell 30-year; buy 29<sup>1</sup>/<sub>2</sub> year; profit as prices converge.**
- **shares of *Royal Dutch* [Amsterdam + ADRs in New York] and *Shell* [London]: 60:40 division of single income stream.**
- **sell 5-year index options; hedge with index futures and sometimes short-term options.**

**Meriwether's group imitated even in their pre-LTCM days at Salomon Brothers:**

*The people making more money were the ones with the better models, the Meriwethers of the world ... before Long-Term Capital ... other people were learning ... by mimicry, what they were doing and they were adjusting their models ... if you saw Meriwether going long a Ginnie Mae ... with an option-adjusted spread of, let's say ... what you thought was 5 basis points, you knew that his model said it's 100 basis points, so what do we have to do to our prepayment model to generate 100 basis point option-adjusted spread? So let's tinker with it a little bit and see if we can get that (interview with Richard Roll).*

**LTCM hugely profitable.**

**1995: 59% before fees**

**1996: 61% before fees**

**“I can’t believe how many times I was told to do a trade because the boys at Long-Term deemed it a winner” (James Cramer).**

## **Imitation provoked “consensus trades”:**

*the arbitrage philosophy ... had been disseminated, well disseminated by August '98; it was there in quite a few hedge funds, it was there in quite a few firms [i.e. banks] ... if you talk[ed] to another arb. trader in the street they'd say, 'Oh yes, I have this as well, I have that as well.' ... And what happened by September '98 is that there was a bunch of arb. trades that ... became consensus. People knew that the U.K. swap spreads was a good trade, people knew that U.S. swap spreads was a good trade, or off/on-the-run (interview with Costas Kaplanis)*

**“Superportfolio” of partially overlapping  
arbitrage positions held by numerous  
banks and hedge funds.**

**Monday, August 17, 1998. Russia:**

- **defaults on rouble-denominated public debt**
- ***de facto* devalues rouble**
- **declares 3-month moratorium on foreign obligations (e.g. forward currency contracts) of Russian banks.**

**Robert Strong, Chase Manhattan bank:  
“I do not view Russia as a major issue.”  
Dow rises nearly 150 points.**

**Russian default triggers losses to arbitrageurs. Sets in train a cascade:**

- 1) losses, even temporary, create pressure on capital-constrained arbitrageurs to liquidate positions: need to meet mark-to-market collateral transfers and margin calls; “value-at-risk” limits on trading desks; investor withdrawals from hedge funds; bank managements “queasy” at losses.**
- 2) liquidations widen spreads and create (temporary) losses for arbitrageurs.**

**Despite arbitrage positions becoming more attractive as spreads widen, arbitrageurs flee market.**

**Not just large losses on individual trades. Large jump in correlations (between different asset classes and countries), despite lack of common fundamentals underlying, e.g.: U.S. swap spreads, yen yield curve anomalies, Royal Dutch/Shell relationship, take-over (“risk”) arbitrage.**

**Interview with Richard Leahy: correlations amongst LTCM’s positions jump from 0.1 or less to around 0.7.**

**LTCM: 44% loss in August 1998 (-10.5 $\sigma$  event on risk model; -14 $\sigma$  event in historical price series).**

**But after this loss LTCM still had \$3.4 bn working capital, of which only \$2 bn committed in financing costs etc. And it owned a *very* attractive arbitrage portfolio: a set of positions that almost certainly would converge at considerable profit (and which did in fact subsequently converge).**

**2 September 1998**

**Robert K. Merton, “The Self-Fulfilling  
Prophecy,” *Antioch Review*, summer 1948:  
a sociological parable.**

**The historical-sociological account of 1998 crisis can be tested quantitatively, using LTCM's portfolio as proxy for hypothesised arbitrage superportfolio.**

**See D. MacKenzie, "Long-Term Capital Management and the Sociology of Arbitrage," *Economy and Society* 32 (2003): 349-380.**

*The nature of the world had changed,  
and we hadn't recognized it.*

**(interview with John W. Meriwether)**

**JWM Partners revised risk model: all the fund's positions, however well diversified internationally and unrelated in asset type are now assumed to have correlations of 1.0 "to the worst event" (Meriwether interview).**

**If you are an “active” trader, or manage such traders, and would like to take part in our study of trading (which unlike the LTCM study will be anonymous), please see me after the talk or email:**

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