The Short of It

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Two events from early this decade

Overview: Funding and funding risk. Today: short positions.

- Wild price moves in Gamestop linked to short squeeze
  - This had a "real" impact as in June 2021, GameStop announced it had raised over $1.1 billion over the preceding 3 months through at-the-market equity offerings for investing in growth initiatives.
- Turmoil in Nickel on the London Metal Exchange (March 8, 2022).

Both reflect on the microstructure of capital markets—and the importance of funding risk.

Shorting

Shorting is confusing. Adding to the confusion is that the process is very different in different markets. Let's focus on the futures market first.

- "Trades" in the futures market are not really trades – they are commitments to trade in the future at terms specified now.
- So if Tsingshan sells 50,000 nickel contracts on the LME on March 1, at $25,103 a ton in 3-month futures, then it commits to sell 300,000 tons of nickel (99.80% purity) on June 1, for $7,530,900,000.
- Tsingshan mines and sells nickel in the spot market. Its output it roughly 8,000 tons per month.
- So this trade was obviously a bet that nickel was overpriced.

Shorting –2

- Tsingshan's contractual commitment involves no cash between the buyer and the seller.
- On this date LME's margin requirement on nickel contracts was $2,000 per ton.
- This means that Tsingshan must post $600 million in collateral with the clearinghouse, LMEClear.
- This collateral is likely US Treasury Bills.
- In addition to transparent trades on an organized exchange, traders may enter over-the-counter futures positions.

LME

- LME is the only exchange in Europe with a physical open outcry market, *The Ring*.

LME NI Contract

LME An HKEX Company

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Futures contracts are an agreement to buy or sell a fixed amount of metal for delivery on a fixed future date at a price agreed today.

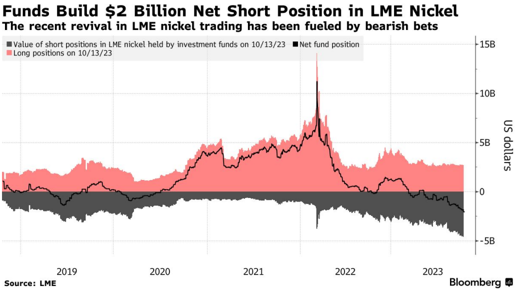
Contract code	NI		
Underlying metal	Nickel of 99.80% purity (minimum) conforming to B39-79 (2008)		
Lot size	6 tonnes		
Prompt dates	Daily: out to 3 months Weekly: 3 out to 6 months Monthly: 7 out to 63 months		
Price quotation	US dollars per tonne		
Clearable currencies	US dollar, Japanese yen, sterling, euro		
Minimum price fluctuation (tick size) per tonne		Outright	Carries
	Ring	$5.00	$0.01
	LMEselect	$5.00	$0.01
	Inter-office	$0.01	$0.01
Last trading day	Up until the close of the first Ring the day before the prompt date		
Settlement type	Physical		
Trading venues	Ring, LMEselect, inter-office telephone		
Margining	Contingent variation margin applied		

Tsingshan Nickel : Xiang Guangdu

- Xiang Guangdu, *The Big Shot*, *The Nickel Alchemist*, chairman and founder of the Tsingshan Holding Group.
  - Tsingshan employs 56,000 people and has $30 billion in revenues.
  - One of the world's largest producers of crude stainless steel.
  - Owns a nickel ore smelting facility in Indonesia.

The Situation

- Anticipating large production increase, Xiang Guangdu enters large short positions in nickel.
- —Some on LME, some Over-The-Counter
- Largest OTC position was JPMorgan Chase—50,000 tons.
- Exchange position 250,000 tons.



Funding

- After Russia invaded Ukraine on Feb 24, 2022.
  - Concerns for global production and supply.
  - Tsingshan squeezed – spiral effect.
- Intraday on March 8, the price jumped to $100,000 per ton.
- Tsingshan was facing losses of roughly $10 billion to hold its position.
- The LME halted trading and reversed all trades.

The spike in nickel's price

Funding

- In retrospect there are a lot of lessons:
  - Tsingshan is an example of too big to fail.
  - Tsingshan “owned” both major money center banks (JPMorgan, esp.) and LME because of its size.
  - Event resembles the Long-Term Capital Management collapse in 1999: Note that even if Tsingshan were largely hedged, they faced severe funding risk.
  - Elliott Investment Management and Jane Street Global Trading were among the squeezers, and they sued LME for over $500 million in UK’s Administrative Court in London.
  - Court ruled in favor of LME.
    - the hedge funds freely subjected themselves to the LME’s rule book and the rules say that LME has the right to cancel trades.

Don’t Cry for Xiang Guangdu

- Thanks to the forebearance shown by the exchange and the banks, Tsingshan was able to unwind its short position over time, and probably lost around $1 billion on this bet.
- From today’s Bloomberg:

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Huge Bond Wagers Make Some Hedge Funds Too Big to Fail, IMF Says

- Funds may be ‘systemically important’ to Treasuries, repo: IMF
- Positions in basis trade are still large after a recent unwind

By Ye Xie and Donal Griffin

(Bloomberg) -- A small group of funds has accumulated such large short wagers in the Treasury market that they could destabilize the broader financial system during times of stress, according to the International Monetary Fund.

“A concentration of vulnerability has built up, as a handful of highly leveraged funds account for most of the short positions in Treasury futures,” the IMF said in its Global Financial Stability Report released this week. “Some of these funds may have become systemically important to the Treasury and repo markets, and stresses they face could affect the broader financial system.”

Hedge Funds Dominate the Basis Trade

Leveraged funds hold more than half of all 2Y short Treasury futures

7.0% Other

12.4% Dealer intermediaries (e.g. banks)

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Gamestop: 70M shares outdg; Float: 54M

Short Interest

On Dec 31, 2020, the short interest in Gamestop stock was 71,196,000 shares, or 131% of the float, and more than the shares outstanding.

How do you short sell? Example institution shorting 200,000 GME shares at $100 per share.

- You must arrange to borrow the shares. The transaction used to borrow shares is a repurchase agreement (repo).
- You submit an order to sell 200,000 shares, which is executed.
- The transaction settles in 2 business days. You receive the $20 million cash from the sale.
- Deliver the cash to Wells Fargo (the securities lender), and it wires the securities to your account. The cash will include the haircut on the transaction, typically 2%, so this amount is $20,400,000.
- Deliver the shares to the buyer.

Short Interest-2

- The repo agreement will specify the repo rate and term. For example 31 basis points for 1 month. This agreement means that in 30 days, you are required to deliver 200,000 GME shares to Wells Fargo, and they are required to deliver you $\$20,400,000 \times \left(1 + .0031 \cdot \frac{30}{360}\right)$.
- The reasons for this arrangement relate to legal aspects of lending and bankruptcy.
- An important aspect of this agreement is the mark-to-market requirement, since this is a term (30-day) repo. Most repos are overnight.
- Whether the result of having to mark, or rolling the repo, if the price jumps to \$250, then the short seller has to either close the position, or post \$30,600,000 in *additional* cash (collateral).

So even if the short seller is right, and the stock is worth 0 a year later, it can lose as a result of funding risk.

Gamestop: 70M shares outdg; Float: 54M

The shares and rehypothecation

- Short selling effectively increases the shares outstanding from the perspective of the market but not in fact, and not from the perspective of the issuing company.
- The securities lender is not the beneficial owner, the buyer is. So the voting rights belong to the buyer, and the dividends are paid to the buyer.
- However, the repo agreement provides for the borrower of the shares to pay all dividends to the securities lender. (One reason for borrowing shares is to obtain the voting rights in a proxy fight.)
- The situation can be further muddled in the process of rehypothecation. The buyer(s) can themselves lend the shares that they own. This explains how the short interest can exceed the float (or even total shares outstanding).

Risks and costs of short positions

- Our example transaction shows that counter-intuitively, the securities lender (L) pays interest to the securities borrower (B), as technically the transaction is a cash loan from B to L that is collateralized by the shares.
- As noted, most securities lending repo is overnight, so that the terms are re-settled daily. If L's client needs the shares–for example to sell, or for a proxy vote – then B may not be able to maintain his position.
  - In the old days this might have resulted in a "delivery fail," and B might be fined.
  - But since the Global Financial Crisis naked shorting is illegal, so B would have to close out the position.
- There is a market for collateral–the fuding market. In the case of GME

Repo Specials

- This discussion highlights a feature of financial securities: They have value as collateral in the market for lending/borrowing securities.
- The procedure I described assumes that the stock (Gamestop, in the example) is considered general collateral in repo.
- When there is high demand to borrow the financial asset, it can trade "on special." This means that the borrower of the security will not earn the market rate on the cash collateral. For example, if Gamestop trades on special by 500 basis points, then the repo rate is -4.87%. This means that the securities borrower will "earn" a -4.87% rate on the cash collateral.

Convenience Yield

- Expected future specialness can drive a wedge between a financial asset's fundamental value and its market value.
- For example I can replicate the on-the-run 10-year US Treasury note with a portfolio of fungible coupon STRIPS.
- This portfolio has exactly the same cash flows as the note, and sells for 99% of par.
- At the same time the note itself sells for par.
- The difference in value is not a mistake it reflects the present value of the note's specialness (convenience yield) above that of the replicating portfolio.
- On March 4, 2021, the Feb 15, 2031 10-year US T-note traded 4.28% on special. (GC repo rate: 3 basis points; This note: -4.25%)

Shorting Risks

Recall Recall means that the securities lender does not agree to roll over a repo agreement on maturity. A study on equity shorting in 2000-01 showed 2% of stocks on loan per month are recalled.

- It can take anywhere from 0 to 50 days to find replacement shares.
- If the short seller cannot find replacement shares it must cover the position by buying the shares in the market and delivering them to the lender.

Rising specialness

Increased haircut In addition to the need to mark the position to market– which requires additional cash when the financial security's price is rising – the percentage of the haircut can change when the position is rolled.

Who lends securities, and why?

- Institutions with long horizons and relatively low turnover are the primary sources of the financial securities.
  - Endowment funds
  - Pension funds
  - Life insurance companies
- Income comes from borrowing cash at overnight repo and lending a little further out on the yield curve and taking on a little more credit risk. Picking up the spread. For example if overnight repo is 27 basis points and 4-day acceptances pay 38 basis points, the securities lender picks up 11 basis points.
- The income from securities lending activity is very small, but attractive as it is largely disconnected from equity risks.
- There are counterparty risks, which are managed by:
  - Choosing counterparties judiciously
  - Marking to market frequently