The Short of It

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Two recent events

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

- Wild price moves in Gamestop linked to short squeeze
    - This now has “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 the current state of capital markets–especially the free money environment created by the Fed and ECB.

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.

LME

Funding

- After Russia invaded Ukraine, nickel prices spiked.
  - Concerns for global production and supply.
  - Tsingshan squeezed – spiral effect.
- Intraday on March 8, the price jumped to \$100,000 per ton.
- On March 29 LME raised margin on a ton of nickel to \$6,144.
- Tsingshan would face a margin call of $(6144 - 2250) \cdot 300,000$ or roughly \$1.2 billion to hold its position.
- The LME halted trading and reversed some trades.

The spike in nickel's price

Funding

- The latest news is that JPMorgan, BNP Paribas, Standard Chartered, and CCBI are arranging a credit facility to prevent Tsingshan from failing and a collapse of the clearinghouse.
- Britain's Financial Conduct Authority and the Bank of England are working with the Exchange to restore normal trading.
- Note that even if Tsingshan were largely hedged, they face severe funding risk.
- JPMorgan Chase, the world's largest lender in metals, is re-evaluating its exposures to commodities.

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.

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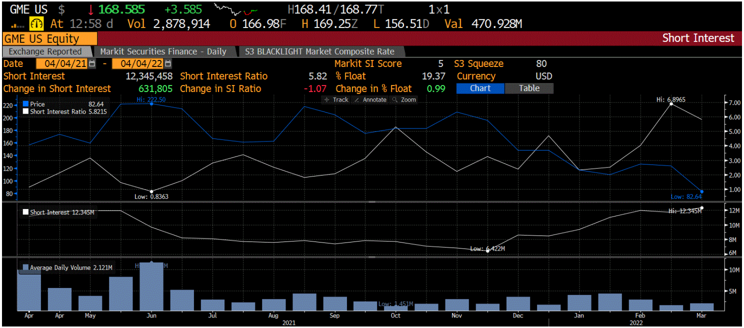

The shares and rehypothecation

- 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