

Derivatives Risks

Examples of Large Financial Trading Losses

The following is a list of some of the largest financial trading losses in modern history. Note that financial derivatives were involved in most of these cases.

#	Nominal amount lost (USD bn)	Country	Company	Source of Loss	Year
1	10	United States	Archegos Capital Management	Total Return Swaps	2021
2	9	United Kingdom	JPMorgan Chase	Credit Default Swaps	2012
3	9	United States	Morgan Stanley	Credit Default Swaps	2008
4	8	China	Tsingshan Holding Group	Short positions on nickel	2022
5	7.2	France	Société Générale	European Index Futures	2008
6	6.5	United States	Amaranth Advisors	Gas Futures	2006
7	4.6	United States	Long Term Capital Management	Bond Arbitrage	1998
8	4.6	Netherlands	PFZW	Oil Futures	2020
9	4.5	United States	Melvin Capital	Bearish Positions	2021
10	4.1	United States	Pershing Square	Valeant Pharmaceuticals	2015-2017
11	2.6	Japan	Sumitomo Corporation	Copper Futures	1996
12	2.5	Brazil	Aracruz	FX Options	2008

What Makes Financial Derivatives Risky?

1. Financial derivatives enable investors to take large exposure to a risk.
2. The notional exposure of an investor can be much larger than the investor's cash investment in a position.
3. **Liquidity Risk:** The size of the derivative market is dynamic. Unlike stocks and bonds with a limited supply, the open interest in derivatives can change.
4. Uncertain liquidity can make it difficult to exit positions after loss and margin calls.
5. There is a greater separation between the organization that issues underlying security (stock or bond) and the derivative investor.
 - a. Large variety of derivatives on any underlying
 - b. The derivative investor does not directly deal with the issuer of the underlying contract
6. Many investors do not understand the complexity of derivatives.
7. Weaker disclosure requirements and complexity of derivatives reduce transparency.

Global OTC derivatives market

In billions of US dollars

	Notional amounts outstanding				Gross market value			
	H2 2019	H1 2020	H2 2020	H1 2021	H2 2019	H1 2020	H2 2020	H1 2021
All contracts	558,513	606,821	582,055	609,996	11,598	15,481	15,783	12,617

JP Morgan Loss During the Financial Crisis

Lessons for Derivatives Users

1. Risk must be quantified and risk limits set.
2. Exceeding risk limits without authority not acceptable even when profits result.
3. Do not assume that a trader with a good track record will always be right.
4. Be diversified.
5. Scenario analysis and stress testing is important.

Lessons for Financial Institutions

1. Monitor traders carefully.
2. Separate the front, middle, and back office.
3. Models can be wrong.
4. Be conservative in recognizing inception profits.
5. Do not sell clients inappropriate products.
6. Beware of easy profits.
7. Liquidity risk is important.
8. There are dangers when many are following the same strategy.
9. Beware of potential liquidity problems when short-term funding is used for long-term needs.
10. Market transparency is important.
11. Manage incentives.
12. Never ignore risk management, even when times are good.

Long Term Capital Management (LTCM)

[Too Big To Fail](#)

Losses on derivatives force Geode Capital Management to close hedge-fund business.

Geode manages all of Fidelity Investments' stock-index funds, and that operation accounts for most of the firm's \$720 billion in assets. But it has also offered an array of riskier, hedge-fund strategies to wealthy clients and institutions. Geode's largest private fund lost about \$250 million after its bets on stock-market volatility turned sour last year. The fund was down by some 36% by spring. The losses, and ensuing margin calls, forced the Geode Diversified Fund to liquidate other unrelated positions and led the fund's biggest investor, Fidelity itself, to withdraw its money. (February 2021)

A massive bet on highly secretive derivatives may have sunk Archegos hedge fund

Forced liquidation of more than \$20 billion in holdings

Investors have to disclose their positions of more than 5% in a U.S.-listed company. Archegos used swaps called contracts-for-difference (CFD) to synthetically create stakes in publicly traded companies without having to declare holdings.

High leverage may have played a role if Archegos deposited only a small percentage of the total value of trades.

The selloff exposed Nomura and Credit Suisse to huge losses. (March 2021)

Lessons for Non-Financial Corporations

1. It is important to fully understand the products you trade
2. Beware of hedgers becoming speculators
3. It can be dangerous to make the Treasurer's department a profit center

Losses to Users of Derivatives Who Do Not Understand Finance

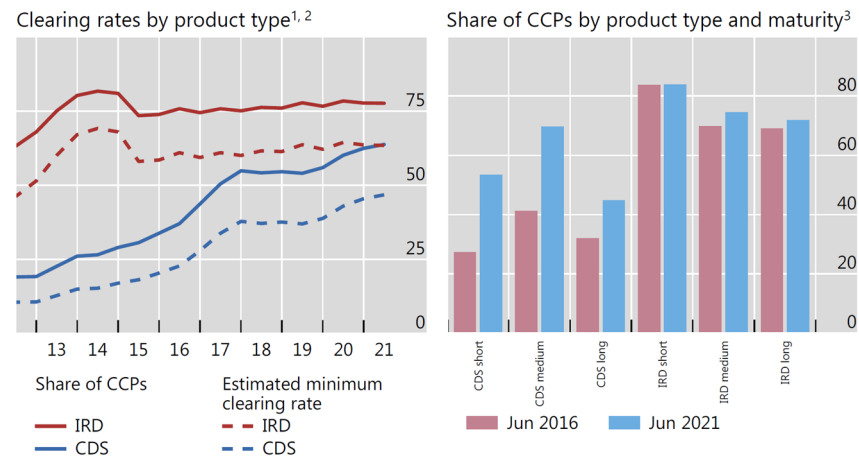
Regulation: Central Clearing

- The complex interrelationships between financial institutions can cause the problems of one financial institution to spread rapidly to other financial institutions and non-financial sectors of the economy.
- The risk that a financial institution poses to the greater economy is called **systemic risk**.
- Since the financial crisis of 2008, regulators have paid greater attention to identifying and managing systemic risk.
- There is an increasing reliance on clearing houses for derivative transactions. A clearinghouse acts as an intermediary between counterparties, manages collateral and protects counterparties against a default.
- A substantial share of trading in OTC contracts has moved to central clearing over time.

Central clearing of interest rate and credit derivatives

Shares, in per cent

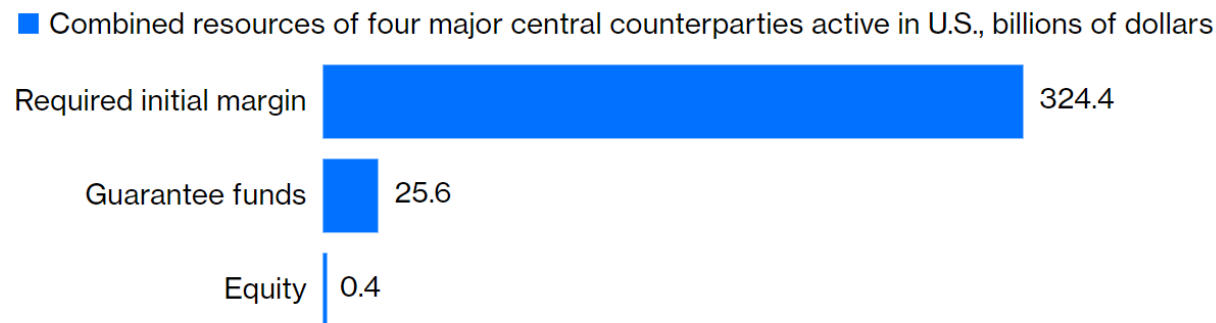
Graph 3



¹ Percentage of notional amounts outstanding of OTC interest rate derivatives (IRD) and credit default swaps (CDS) cleared by central counterparties (CCP). The estimated minimum clearing rate is the proportion of trades that are cleared, calculated as $(CCP / 2) / (1 - (CCP / 2))$, where CCP represents the share of notional amounts outstanding that dealers report against CCPs. ² The CCP share is halved to adjust for the potential double-counting of inter-dealer trades novated to CCPs. ³ Short refers to maturity below one year, medium refers to maturity between one and five years, and long refers to maturity above five years.

Source: BIS OTC derivatives statistics (Tables [D5.1](#) and [D10.1](#)).

- Clearing houses can also become a source of vulnerability.
- Clearinghouses rely on collateral, guarantee funds and shareholder equity to cover any defaults or other losses.
- If these are not enough, non-defaulting members of the clearinghouse have to provide funds.
- However, guarantee funds prepaid by all customers are usually less than 10 percent of total collateral and the equity of the clearinghouse is less than 0.3 percent.
- In 2018, a Nordic trader placed big bets on energy markets and defaulted after experiencing losses.
- Covering his defaults of \$133 million required two-thirds of Nasdaq clearing house's guarantee fund.
- This episode highlights the vulnerability of clearinghouses as their role in over-the-counter derivatives transactions increases.



Source: Bloomberg Opinion, April 10, 2019