

# The Role and Evaluation of Derivatives in Finance

“Derivatives are financial weapons of mass destruction.” -Warren E. Buffett

## WHAT ARE DERIVATIVES?

- An asset that *derives* its value from another asset.
- These contracts are used to protect against **risk**
- We can split derivatives into two: **OTC** or exchange-traded

VALUE OF OTC DERIVATIVES (2022):

**\$632  
TRILLION**

## WHAT TYPES ARE THERE?



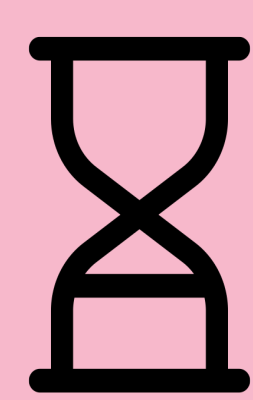
### FUTURES

A futures contract is an agreement to buy or sell an asset at a future date.



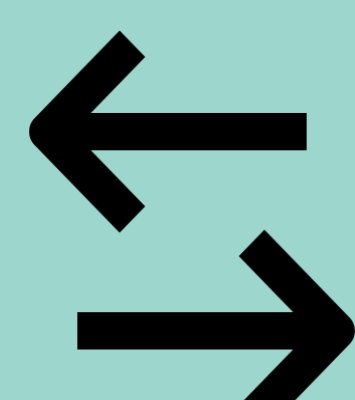
### FORWARD

A forward contract, but not traded on an exchange



### OPTION

The right to buy/sell the stock at the given time and strike price



### SWAP

Exchanging financial instruments, cash, or payments for a given time

## With this in mind...

I set out to research if derivatives are **allies** or **adversaries** to economic agents.

## CASE STUDY I - METALLGESELLSCHAFT AG

MG was one of Germany's largest industrial firms before their investing group, MGRM, lost **\$1.5bn** in a derivatives disaster.

MGRM placed **forward** contracts for up to 10 years on oil and heating products.

If oil prices **rise**, then they have to pay more to fulfil their contracts, causing losses.

To offset this **commodity risk**, MGRM built a very large, short-term position in oil **futures**.

Despite this incredible loss, my research concluded that this was a failure of **regulation and misuse**, not the innate nature of derivatives.

## CASE STUDY II – 2007– 2008 FINANCIAL CRISIS

The GFC was the most severe economic crisis following the Great Depression. Many banks failed due to overexposure to **toxic** assets, culminating in the bankruptcy of **Lehman Brothers**.

**Mortgage-backed securities** a security that derives its value from an individual being able to back their debt, were pooled into **collectivized debt obligation (CDO)** securities.

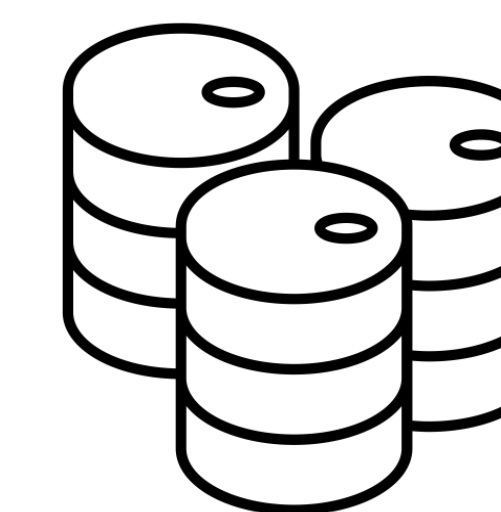
... creating a derivative of a derivative.

**Credit default swap-options (CDS)** were also added to the CDO, insuring the holder against a default, creating a **Synthetic CDO**.

... a derivative of a derivative, of a derivative.

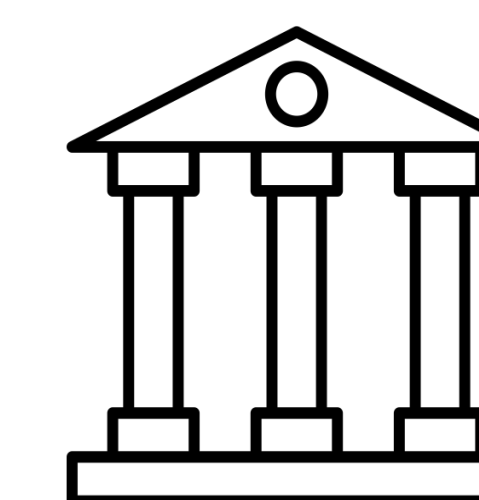
It is easy to blame the nature of derivatives for creating the crisis.

This is untrue - this was a product of **fraud**, systemic misuse and **greed**.



MGRM placed **forward** guarantees on **180 million barrels** of petrol.

This counter-strategy, known as a '**hedge**' outgrew the original position. Now, if oil prices **fall**, then their **losses will be greater** than if oil prices rise.



U.S. and European banks

...lost more than **\$1 trillion**.

Investors were not aware that these mortgages were **sub-prime** (the homeowner is likely not going to pay).

Despite this risk, credit rating agents rated these **Synthetic CDOs** as **AAA** - the **safest** possible investment.

"Ultimately, derivatives are neither inherently **good** nor **evil**. They constitute powerful financial tools which can either effectively **manage risk** or dangerously **conceal** it".

With **prudent regulation**, derivatives can be a net benefit to all agents by the transferring of risk.