THE DERIVATIVE MARKET

• Global derivatives markets are worth tens of trillions of dollars annually
• Can be a transaction in isolation or a part of a broader transaction like structured finance, project financing, securitisations, CDOs and repackagings
• Mystery
• Terminology
FACTS AND FIGURES

• BIS reports USD 595 trillion notional of derivatives at end June 2018
• USA reports average daily notional interest rate derivative trading Q1 2017 at USD 787 billion
• USA reports Q1 2017 average number of interest rate derivative trades 4718
• 74% of interest rate derivative turnover involves an end user on one side and a reporting dealer on the other.
EXAMPLES: ALL MARKET SECTORS

Manufacturing:
• Manufacturers use derivatives to help lock in the cost of issuing debt to finance new investments and plants, which contributes to growth and job creation.

Exporting:
• Exporters use derivatives to achieve certainty in the rate they can convert future overseas revenue, which creates stability and keeps them competitive.

Food Production:
• The agricultural businesses that produce food and the companies that bring it to store use derivatives to manage the risk of fluctuating crop, livestock and fuel prices.

Energy:
• Explorers, producers and distributors of energy use derivatives to manage changes in energy prices and reduce volatility for consumers.

Financial Services:
• Banks use derivatives to manage their interest rate risk, enabling them to expand lending to individuals and businesses.
EXAMPLES: ALL MARKET SECTORS
CONTINUED

Mortgage Providers:
• Derivatives allow mortgage providers to offer a choice of fixed-rate and floating-rate mortgages.

Transport:
• Airlines use derivatives to hedge fuel costs, which helps to keep ticket prices more stable.

Pensions:
• Pension funds use derivatives to manage interest rate and inflation risk to protect the value of pension pots for future retirees.

Insurance:
• Insurance companies use derivatives to ensure premiums paid by customers are sufficient to meet future insurance claims.
EXAMPLES OF DERIVATIVE TRANSACTIONS

- Interest Rate Swap
- Basis Swap
- Forward Rate Transaction
- Commodity Option
- Equity or Equity Index Swap
- Equity Option
- Equity Index Option
- Bond Option
- Interest Rate Option
- Cap Transaction
- Floor Transaction
- Collar Transaction
- Currency Swap

- Cross Currency Rate Swap
- Currency Option
  - Deliverable
  - Non-Deliverable
- Foreign Exchange Transaction
  - Deliverable
  - Non-Deliverable
- Swaption
- Credit Default Swap
- Total Return Swap
- Bullion Trade
- Bullion Option
- Bullion Swap
- Any Combination of the above
TODAY

• What is a derivative?
• Examples
• Terminology
• How are they documented?
• Legal issues
WHAT ARE DERIVATIVES?
DEFINITION

“A derivative is a contract, whose value derives from that of an underlying asset or index”
WHAT ARE DERIVATIVES?
FIVE KEY ELEMENTS

Contracts
• general principles of contract law apply
• capacity and authority

Rights and obligations
• may change over life of contract as value changes
• market risk

Future performance
• Counterparty risk - bankruptcy

Linked to underlying asset
• value of underlying affects value of derivative

Financial instruments
• a derivative contract has a value and can be sold independently of the underlying asset.
TYPES OF DERIVATIVES: FORWARDS AND OPTIONS

The crucial building blocks to understanding all derivative products:

**Forwards**
- Terms agreed now
- Creates legal obligations for both parties to perform in the future
- Example: equity forward (agreement today for the sale and purchase of specified shares on a specified date in the future at an agreed price) (aka “future” in exchange traded context)

**Options**
- Terms agreed now
- Option buyer has right (but not obligation) to exercise in future
- Put or call (sell or buy)
- Example: equity option (agreement today giving one party the option to buy/sell specified shares in the future at an agreed price)

**Swaps**
- Typically an exchange of cash flows over time
- A type of forward, since:
  - terms agreed now
  - performance in future
  - creates legal obligations for both parties to perform in the future
- Example: fixed to floating interest rate swap
HOW ARE DERIVATIVES TRANSACTED?

**OTC** (over-the-counter) or securities or funds

Me  ───────────  You

Vs

**Exchange traded**

Me  ───────────  Exchange/ Clearing System  ───────────  You
EXAMPLE OF A FORWARD

• You and I agree now that I will sell my shares to you in 5 years for $100.
• Compulsory (no optionality)
• Why?

• In 5 years what happens?
• What if cash settled?
ANOTHER EXAMPLE OF A FORWARD: SWAPS

• Subset of forwards

• Can swap:
  – assets such as bonds or equities
  – cash flows
  – interest rates
  – currencies
  – credit risk
EXAMPLE: INTEREST RATE SWAP

Bank (Lender) USD 20m for 4 years LOAN Interest 6 month LIBOR

Company (Borrower) Operating Income USD

6 month LIBOR SWAP Fixed 6%

Market

Swap Dealer
EXAMPLE: CURRENCY SWAP

- **Bank**
  - USD LOAN
  - USD interest

- **Company (Borrower)**
  - Operating Income
  - GBP
  - USD interest
  - SWAP
  - GBP

- **Swap Dealer**

- **Market**
EXAMPLE OF PUT OPTION

• You and I agree now that I will have the option to sell (put) my shares to you in 5 years for $100

• I “may do”, you then “must do”

• Why?
  – Option buyer has paid a premium to option seller

• In 5 years what happens?
EXAMPLE OF CALL OPTION

• You and I agree now that you will have the option to buy (call) my shares in 5 years for $100
• You “may do”, I then “must do”
• Why?
  – Option buyer has paid a premium to the option seller
• In 5 years what happens?
Terminology

- Call option - a right to purchase
- Put option - a right to sell
- Premium
- Exercise
- Exercise price
- European style - exercisable only at maturity
- American style - exercisable at any time in the exercise period, hence expire
- Bermudan style - exercisable on certain specified dates in the exercise period
TERMINOLOGY: EXPOSURE AND RISK IN DERIVATIVES

Position/Exposure
- if A owes money to B then B can be said to have an exposure to/be exposed to A

Credit risk
- B is taking a risk in respect of A’s creditworthiness that A will be able to pay B back before A goes bust (risk of insolvency)

Settlement risk
- the risk that A fails to settle its obligations on the due date (thus perhaps causing B to default elsewhere)

Market risk
- the risk of an adverse movement in the relevant market if derivative needs to be re-booked
WHY USE DERIVATIVES?

Principally:

Hedging
• Managing out risk
• Remember: a hedge is an investment made to reduce the risk of loss from fluctuations in interest rates or the price of commodities, currencies or securities etc.

Speculation
• Deliberately taking on risk for the reward.

Arbitrage
• Taking advantage of different prices in different markets.
HOW ARE DERIVATIVES VALUED?
MARK-TO-MARKET (1)

• Value of derivative to each party at a moment in time during the tenure of the derivative

2007 ← → 2027

19 March 2019

• Example: 1EUR/1USD Swap
HOW ARE DERIVATIVES VALUED?
MARK-TO-MARKET (2)

• What would parties pay to enter transaction again
• In the money
• Out of the money
• Why calculate?
  – Determine exposure for credit and regulatory purposes
WHAT IS COLLATERAL?

• A credit enhancement mechanism used to reduce or mitigate credit risk
• Limits the credit exposure of one or both parties across a portfolio of derivatives
• The net mark–to–market value of the portfolio between two parties is reviewed on a periodic basis and, if necessary, the out–of–the–money party transfers collateral to the in–the–money party.

What is the purpose of taking collateral?

• Counterparty risk transformed into legal, operational, market, liquidity risks
• Regulatory capital can be reduced
• Compliance with OTC regulation
• Collateral can produce access to:
  – More clients, more liquidity
  – Longer maturity transactions
  – Larger size transactions
  – Transactions with high risk elements.
• Who is ISDA?
• What is a Master Agreement?
• The 3 Master Agreements:
  – 1987
  – 1992
  – 2002
• What does it look like?
ISDA DERIVATIVE DOCUMENTATION FRAMEWORK: THE KEY COMPONENTS

- Master Agreement
- Schedule
- Optional: Credit Support Documents
- Confirmation + Definitions
- Confirmation + Definitions
- Confirmation + Definitions
- Confirmation + Definitions
- Confirmation + Definitions
BENEFITS OF MASTER AGREEMENT

• Certainty as to legal position

• Liquidity: facilitates more market trading when parties trade consistently

• Bank documentation teams: reduces need to rely on outside Counsel

• Reduces costs of documenting derivative transactions.
### ISDA MASTER AGREEMENT
#### COMPARISON TO LOAN AGREEMENT

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Payment netting for same currency payments on same day benefits counterparties by reducing:

- number of payments
- size of payment
- scope for settlement error
- cost of payment
- credit exposure
- settlement risk.
EXAMPLE OF PAYMENT NETTING

PARTY A

USD 100
Same day
USD 60

PAYMENT NETTING

PARTY B

PARTY A

40
IMPORTANT MASTER AGREEMENT CONCEPTS

WHEN DO TRANSACTIONS TERMINATE EARLY?

Events of Default (All trades terminate)
- Bankruptcy
- Failure to Pay
- Breach of Agreement
- Cross Default etc.

Termination Events (Some trades terminate)
- Illegality
- Force Majeure
- Tax Event
- Additional Termination Events etc.
How does close-out netting work?

**Upon insolvency**
- Accelerate performance of individual derivative transactions
- Convert non-cash amounts to cash equivalent
- Convert all amounts to a base currency (the “Termination Currency”)
- Set-off each amount to produce single figure
- Intended to stop “cherry-picking” by liquidator.

**As a concept before insolvency**
- Risk management
- Collateral on a net basis
- Regulatory capital requirements for banks.
EXAMPLE OF CLOSE-OUT NETTING

PARTY A — PARTY B

MTM Value 40

Cash Flows

PARTY A — PARTY B

MTM Value 10

Cash Flows

CLOSE-OUT NETTING

PARTY A — PARTY B

30
Effective risk management requires legal certainty. In the ISDA context this means:

• Enforceability of derivatives contracts
• Clarity of insolvency law and enforceability of netting provisions
• Clarity regarding the treatment of collateral.

Key questions:

• Will my agreement be respected and enforced by a court or arbitration tribunal?
• Will it be enforced as written, both before and after my counterparty’s insolvency?
• How can I protect against the risk of my counterparty’s insolvency?
  – Early termination and close-out netting under a master agreement
  – Do collateral arrangements work?
  – Legal opinions.
LEGAL ISSUES IMPACTING DERIVATIVES

Licensing and Capacity
• Authorisation
• Capacity and authority

Regulatory requirements
• Trade reporting
• Mandatory clearing
• Mandatory margining.

Insolvency
• Collateral
• Netting

Legal characterisation
• Insurance
• Tax
• Gambling