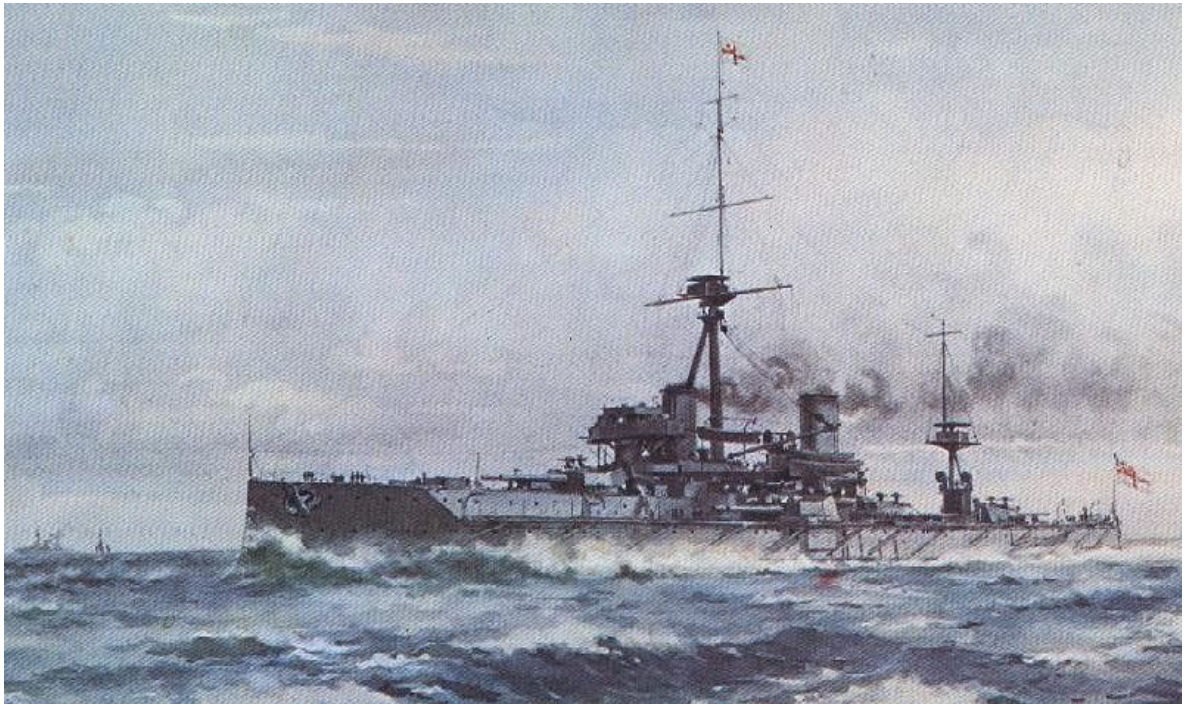

AIB Capital Ltd
Your Vision... Our Mission

# NSE DERIVATIVES INTRODUCTION



# Overview

- Derivatives 101;
- Derivatives Market Structure;
- Proposed Contracts;
- Margin and Mark-to-Market; and
- Key Benefits and Risks of Derivatives;

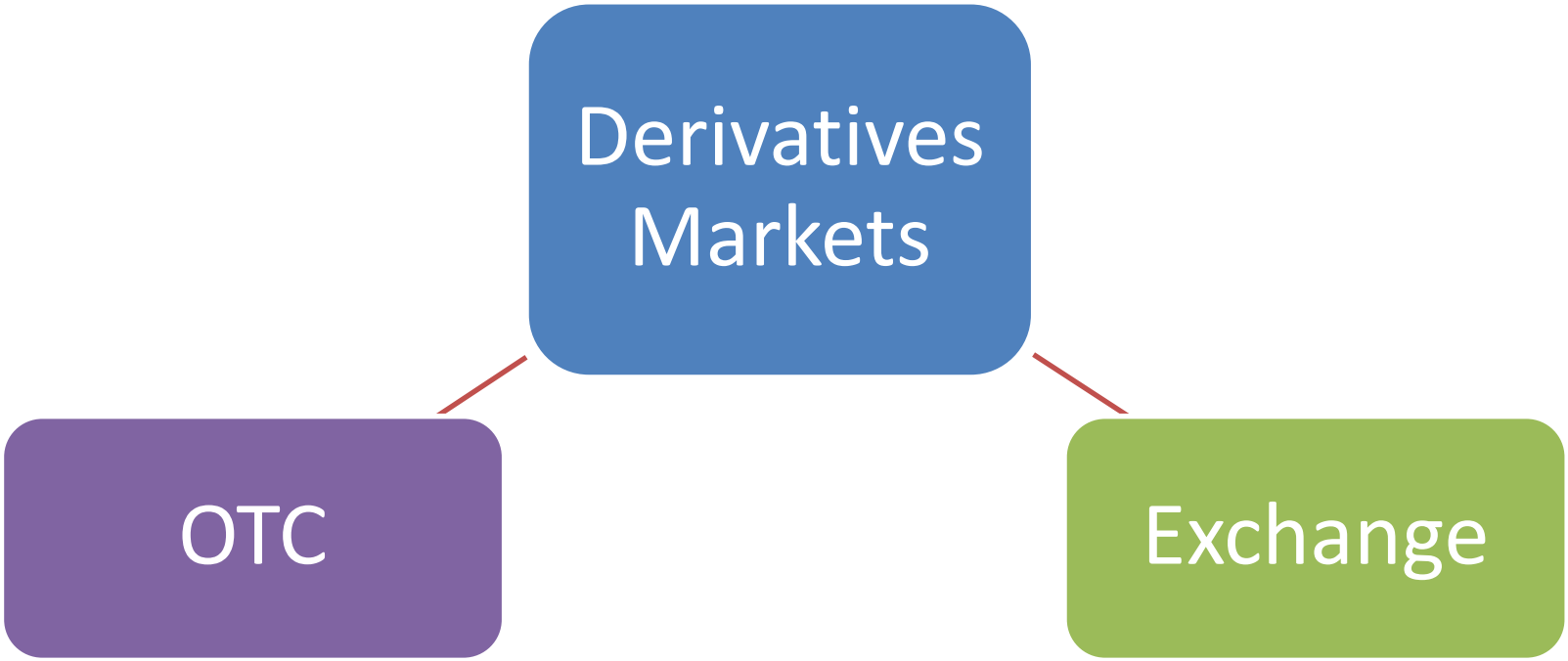
# What are Derivatives?

- Financial instruments whose characteristics and value depend upon the characteristics and value of an underlying asset which is typically a commodity, bond, equity or currency.
- The derivative itself is merely a contract between two or more parties.
- Investors buy or sell derivatives to manage the risk associated with the underlying security, to protect against fluctuations in value, or to profit from market movements.

# Types of Derivatives Markets

Derivatives are traded in the following two distinct types of markets:

- Over-The-Counter (OTC)
- On an exchange



# Types of Derivatives Markets

**Over the Counter (OTC)**

- Parties trade directly with each other without going through an exchange or other intermediary.

- The contract between the two parties is privately negotiated and it can be tailor-made to their liking. OTC markets are generally less regulated and

# Types of Derivatives Markets

**Exchange**:

- Trading is conducted via specialized derivatives exchanges or other exchanges. Derivatives traded on an exchange are referred to as Exchange Traded Derivatives (ETD).

- Exchange Traded Derivatives have standardised specifications defined by the exchange. Pricing and trade information is very visible and transpar-

# Types of Derivatives Markets

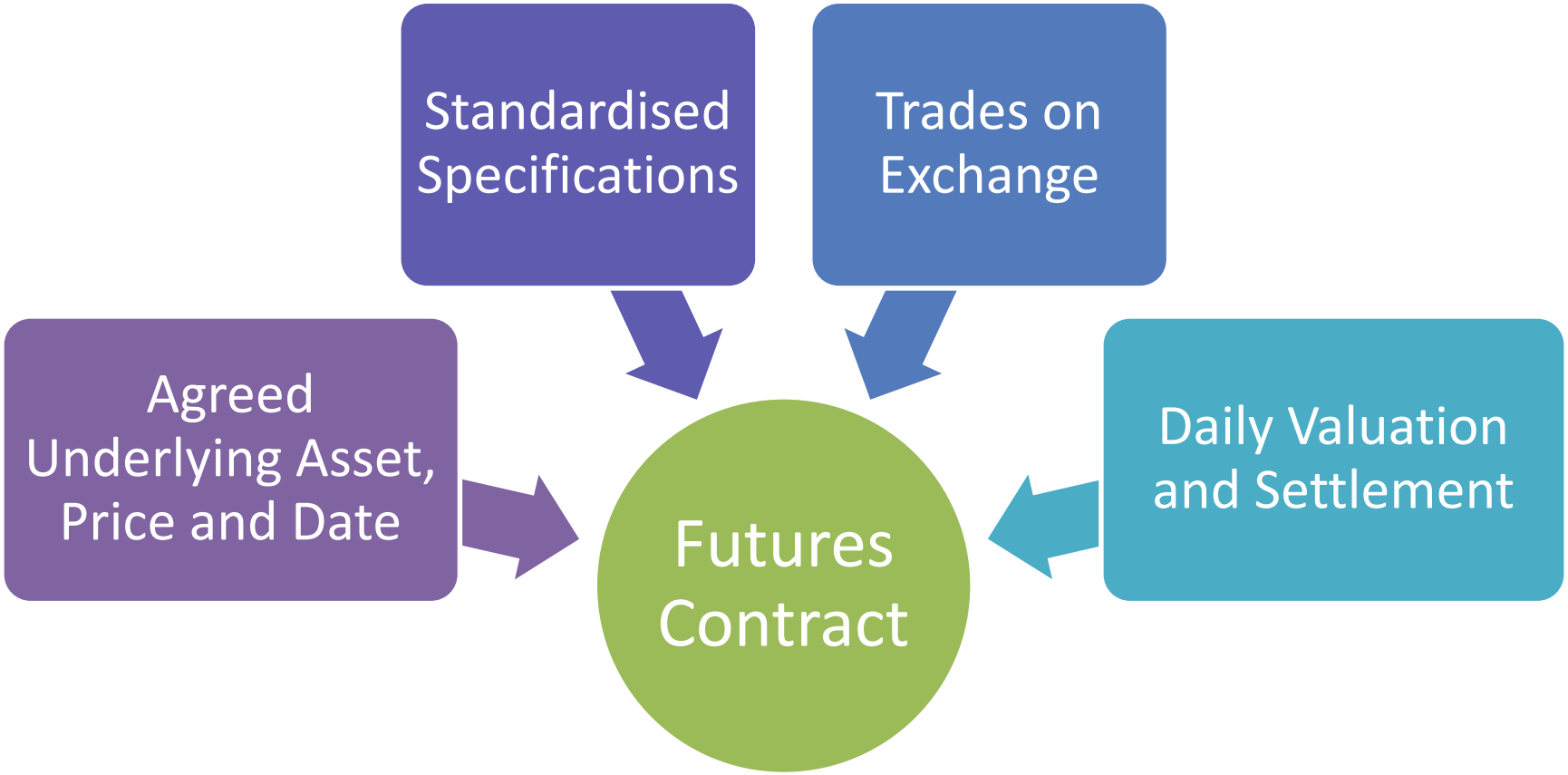
| Over-The-Counter (OTC) | Exchange Traded Derivatives (ETD) |
|---|---|
| Parties trade directly without intermediary | Parties trade through Exchange |
| Tailor-made specifications | Standardised specifications |
| Generally less regulation | More regulation |
| Trade reporting less transparent | Transparent pricing and trade reporting |
| No cash flows until maturity of contract. | Positions are revalued daily and profits and losses are paid daily. |

# Basic Types of Derivatives

| Instrument | Description |
|---|---|
| **Forwards** | Agreement to exchange an underlying asset at a pre-agreed price on a future date. Forwards create obligations.<br>Forward contracts are more flexible and trade in OTC markets. |
| **Futures** | Agreement to exchange an underlying asset at a pre-agreed price on a future date. Futures create obligations.<br>Unlike forwards, futures contracts are standardised and trade on an Exchange. |
| **Options** | Agreement that gives the buyer the right but not the obligation to buy or sell the underlying asset at a pre-agreed price.<br>Options trade on both OTC and Exchange markets. |
| **Swaps** | Agreement that allows parties to exchange cash flows. E.g. swapping fixed interest rate payments for floating interest rate payments. Swaps create obligations and trade in OTC markets. |

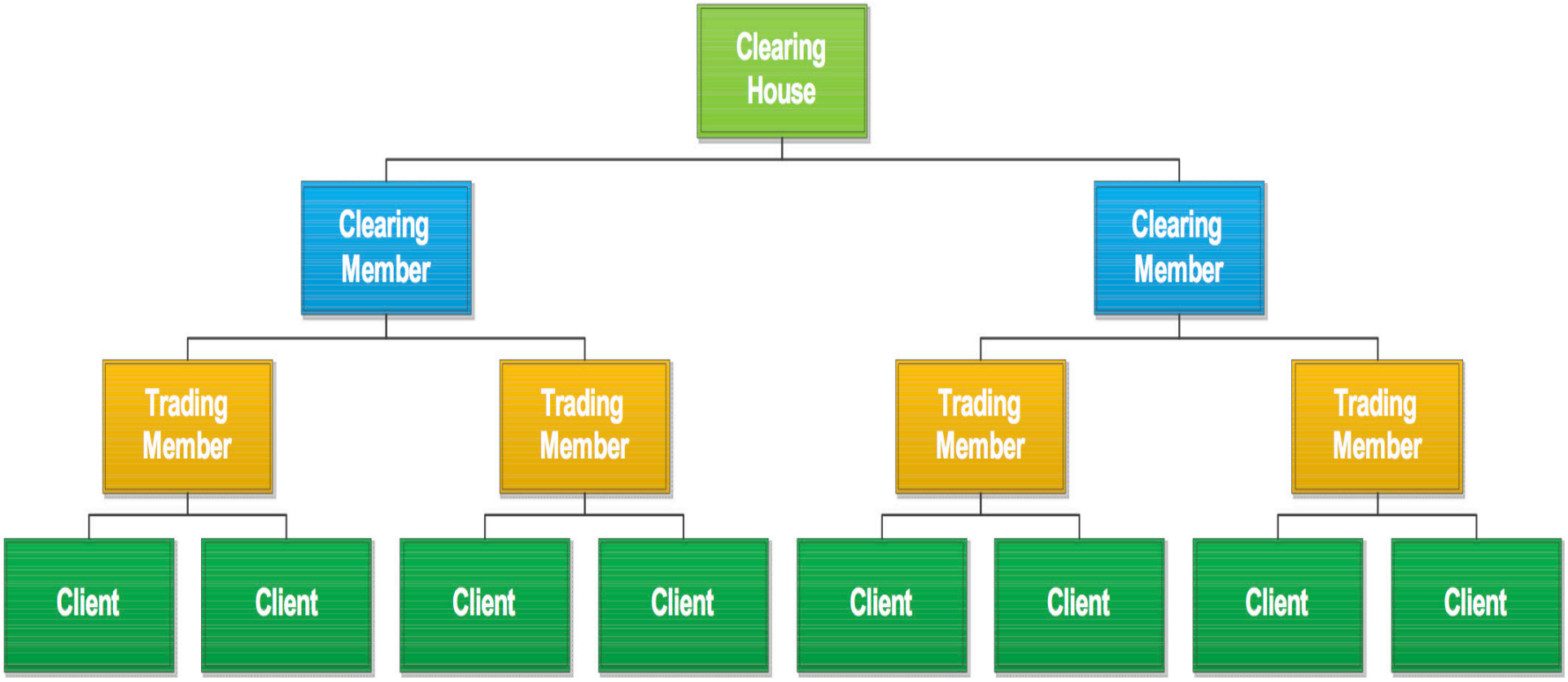
# NSE Derivatives

The NSE derivatives market will offer futures contracts.



# NSE DERIVATIVES MARKET STRUCTURE

# Market Structure



# Players in the Market

- **Clearing House** – Responsible for settling trading accounts, confirming trades, collecting and maintaining margin monies, regulating delivery and reporting trading data.

- Acts as a buyer to every seller and as a seller to every buyer through the process of novation.

- The Clearing House does not trade with investors. Upon execution of the trade between the buyer and seller, the Clearing House steps in and becomes the counterparty for both investors and guarantees performance of all obligations.

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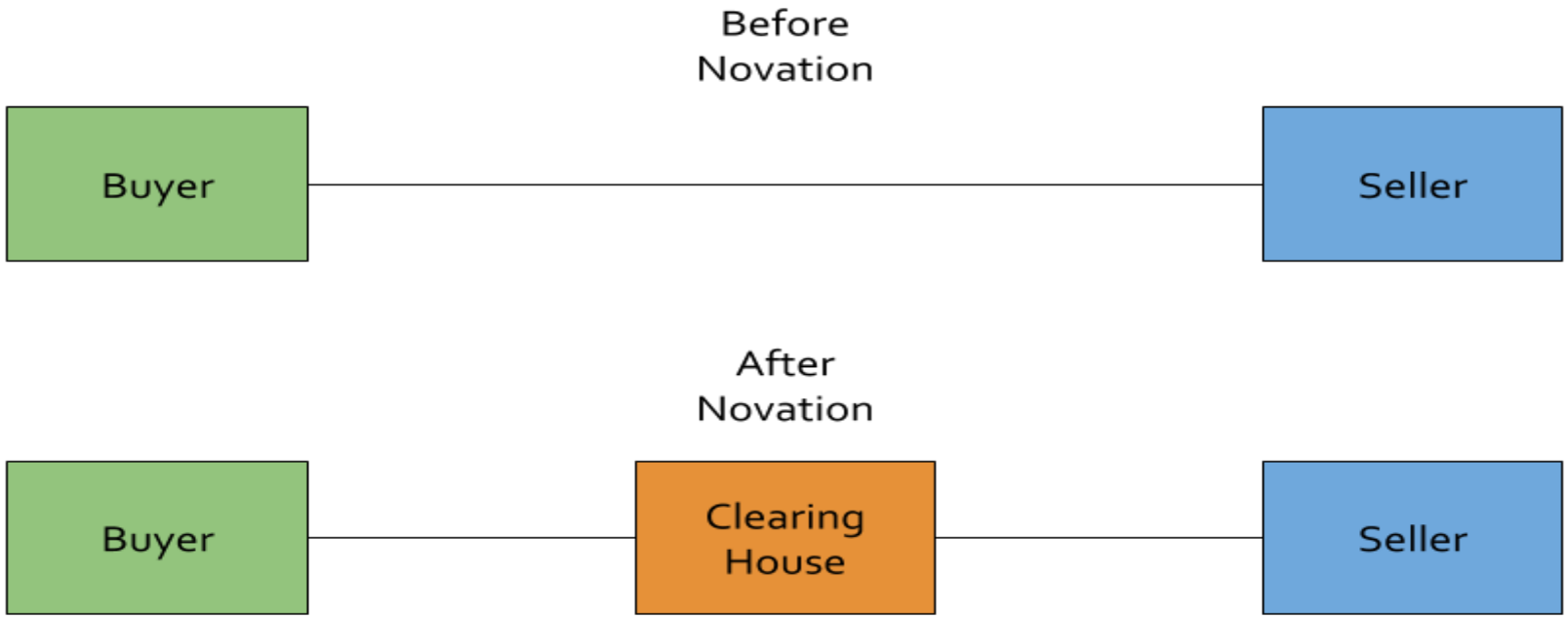

# Players in the Market

- **Clearing Members** – Responsible for clearing, settlement and risk management of trades executed by their Trading Members.

- Share secondary responsibility for the liquidity of the clearing operation. Clearing Members are banks or financial institutions licensed by CBK.

# Players in the Market

**Trading Members** – Brokers and Investment Banks
**Clients** – Investors (Individuals & Institutions); Speculators, Hedgers, Arbitrageurs

**Clients – Hedgers**

- Hedgers enter a derivative contract to protect against adverse changes in the value of their assets. A fall in the value of their assets is compensated by an increase in the value of the derivative contract.

E.g. A fall in the value of a share portfolio can be offset by gains on futures contracts that mirror the portfolio.

# Players in the Market

**Clients – Speculators**

- Speculators attempt to make profits by anticipating changes in market prices.

E.g. An investor does not own ABC Ltd shares but believes their value will fall. The investor can sell ABC Ltd futures and make a profit on the fall in value.
Likewise, if the investor believes the shares will appreciate in value, they do not have to buy the shares directly, they can buy the futures contracts instead.

# Players in the Market

**Clients – Arbitrageurs**

- Arbitrageurs enter into transactions in two or more related markets in order to profit from any discrepancies/mispricing between the markets. By doing this, arbitrageurs also help to make markets liquid, ensure accurate and uniform pricing, and enhance price stability.

E.g. An arbitrageur sees a deviation in the normal relationship between ABC Ltd shares and ABC Ltd futures. The arbitrageur can buy the underpriced instrument and sell the overpriced instrument thus making a risk-free profit.

# PROPOSED CONTRACTS AND TRADING FEES

# Contracts

1. NSE 25 Index Futures

2. Single Stock Futures

# Contracts

| 1. NSE 25 Index Futures | |
|---|---|
| i. Underlying asset | NSE 25 Share Index |
| ii. Contract size | One index point equals one hundred Kenyan Shillings (KES 100.00) |
| iii. Minimum price movement | One index point (KES 100.00) |
| iv. Contract months | Quarterly contracts |
| v. Settlement | Cash settled in Kenyan Shillings |
| vi. Settlement price | VWAP for liquid contracts or theoretical price (spot + cost of carry) for illiquid contracts |
| vii. Expiry dates | 3rd Thursday of every expiry month |

# Contracts

<table>
<tr><th colspan="2">2. Single Stock Futures</th></tr>
<tr><td>i. Underlying asset</td><td>Qualifying stock (share)</td></tr>
<tr><td>ii. Contract size</td><td>For shares trading below KES 100:<br>One contract equals 1,000 underlying shares<br><br>For shares trading above KES 100:<br>One contract equals 100 underlying shares</td></tr>
<tr><td>iii. Minimum price movement</td><td>
<table>
<tr><th>Price Range</th><th>Tick Size</th></tr>
<tr><td>Below 100.00</td><td>0.01</td></tr>
<tr><td>≥ 100.00 < 500.00</td><td>0.05</td></tr>
<tr><td>≥ 500.00</td><td>0.25</td></tr>
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</td></tr>
<tr><td>iv. Contract months</td><td>Quarterly contracts</td></tr>
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# Contracts

| Available Single Stock Futures | |
|---|---|
| 1. Safaricom | 5. EABL |
| 2. KCB | 6. BAT |
| 3. Equity | 7. Bamburi |
| 4. KenGen | |

# Trading Fees

| Fee | Single Stock Futures | Index Futures |
|---|---|---|
| NSE | 0.025% | 0.02% |
| Clearing Member | 0.025% | 0.02% |
| Trading Member | 0.10% | 0.08% |
| Investor Protection Fund | 0.01% | 0.01% |
| Capital Markets Authority | 0.01% | 0.01% |
| **Total** | **0.17%** | **0.14%** |

Note: Trading fees are charged as a percentage of the value of the trade. E.g. A single stock future trade worth KES 1,000,000 would attract a total fee of KES 1,700

# MARGIN AND MARK-TO-MARKET

# Margin and Mark-to-Market

**Spot Market**

Pay full cash amount upfront

Profit/Loss only realised when exiting position

**Derivatives Market**

Pay margin amount upfront

Profit/Loss realised on a daily basis

# Margin and Mark-to-Market

- **Types of Margin**
  1. Initial Margin
  2. Additional Margin
  3. House Margin
  4. Variation Margin

# Margin and Mark-to-Market

## Margin

1. Initial Margin (IM)

- Good faith deposit required to open a position. This means it is col lected from both the buyer and the seller.

- IM is held by the Clearing House and is refunded when position is closed.

- Calculated by the Exchange and takes into account the reasonable expected loss on a position.

# Margin and Mark-to-Market

## Margin

2. Additional Margin (AM)

- Collected and held by Clearing Members on top of IM. AM therefore acts as a buffer for Clearing Members.

- Refunded when position is closed.

- Set as a percentage of IM by the Clearing Members according to risk assessment of its Trading Member.

# Margin and Mark-to-Market

**Margin**

3. House Margin (HM)

- Collected and held by Trading Members on top of IM and AM.
- The amount collected is agreed between Trading Member and Client.

# Margin and Mark-to-Market

Margin

4. Variation Margin (VM)

- Amount that is due to or from a Client as a result of daily mark-to-market.
- This is the Client's daily profit or loss.

# Margin and Mark-to-Market

Mark-to-Market

- Calculation of daily profits and losses on open positions. The calculations are based on the daily changes in the market value of positions.

- Counterparty risk is therefore carried for only one day.
  The process can be described as "zero-sum" because the buyer's loss is the seller's gain and vice versa.

| | |
|---|---|
| **Trade Date** | 4-Mar-19 |
| **Contract Name** | 21 MAR19 SCOM |
| **Contract Size** | 1,000 |
| **Quantity** | 10 |
| **Trade Price** | 25 |
| **Exposure** | 250,000 |
| **Initial Margin @ 10%** | 25,000 |
| **Additional Margin @ 10%** | 2,500 |
| **Total Margin** | 27,500 |
| **Trading Fees @ 0.17%** | 425 |

Assume the client is a **SELLER**. By selling futures, the client gains from downward price movements.

Since the mark-to-market process is zero-sum, the seller's profit is the buyer's loss.

The client enters the position at a price of KES 25 before exiting four days later at a price of KES 24.

| Date | Closing Price | P/L Calculation | VM | IM | AM | Fees | Net CF |
|---|---|---|---|---|---|---|---|
| 4-Mar-19 | 24 | (25 - 24) X 10 X 1000 | 10,000 | -25,000 | -2,500 | -425 | **-17,925** |
| 5-Mar-19 | 22 | (24 - 22) X 10 X 1000 | 20,000 | | | | **20,000** |
| 6-Mar-19 | 23 | (22 - 23) X 10 X 1000 | -10,000 | | | | **-10,000** |
| 7-Mar-19 | 25 | (23 - 25) X 10 X 1000 | -20,000 | | | | **-20,000** |
| 8-Mar-19 | 24 | (25 - 24) X 10 X 1000 | 10,000 | 25,000 | 2,500 | -425 | **37,075** |
| | | | **10,000** | **0** | **0** | **-850** | **9,150** |

# Hedging Example

- Consider an investor with a stock portfolio of KES 1,200,000.
- The investor is concerned about a possible market decline but does not wish to sell their stocks just yet.
- Instead of selling off stocks in the portfolio, the investor can hedge the portfolio using equity index futures that resemble the stock portfolio.
- The investor would therefore hedge the portfolio by selling NSE 25 Share Index futures.

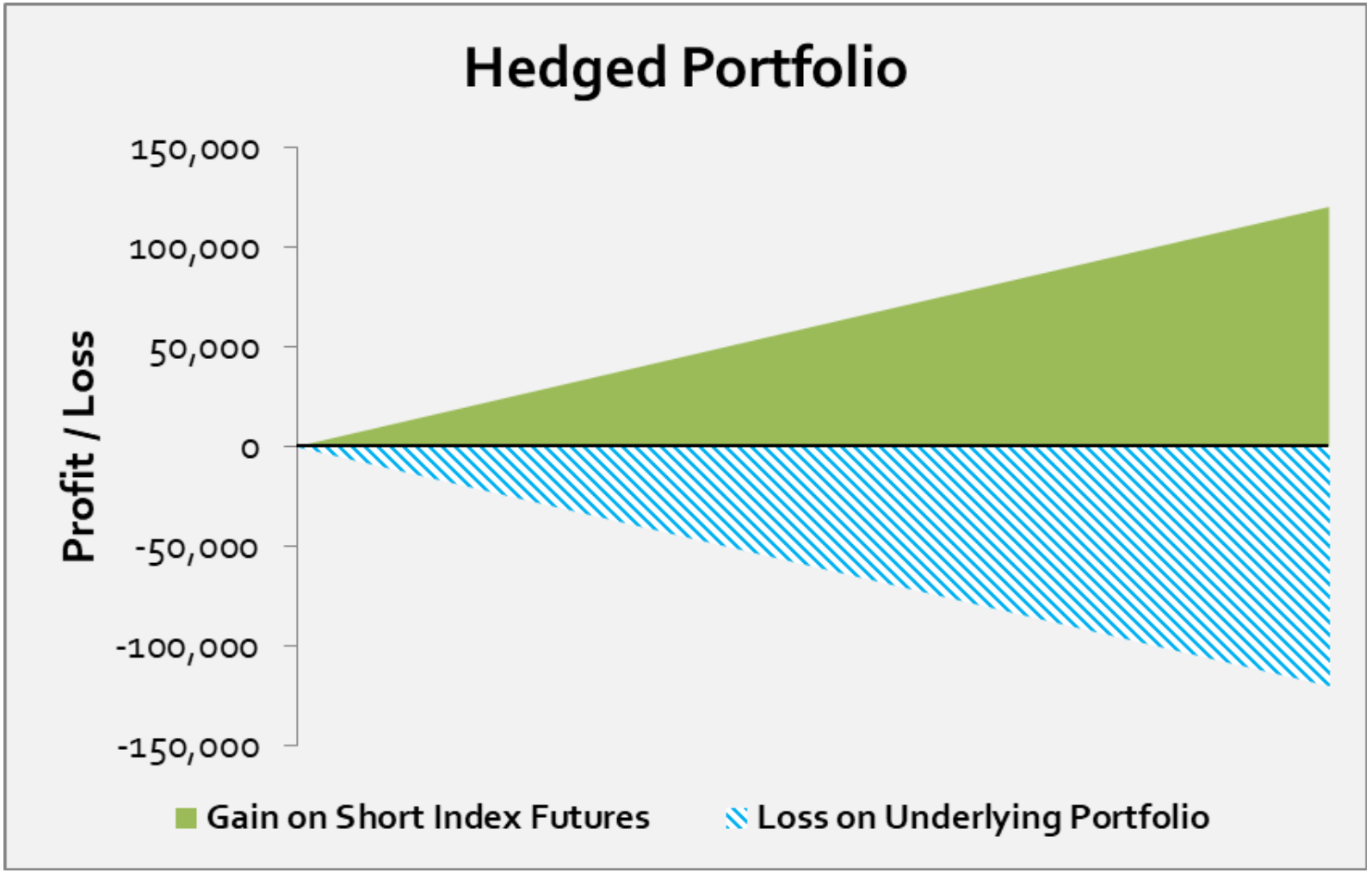
# Hedging Example

- Assume NSE 25 Share Index futures are currently trading at 4,000.
- The notional value of 1 index future at the current price is:
  KES 400,000
  i.e. (1 x 100 x 4,000)
- The investor would therefore trade 3 index futures in order to match the value of the stock portfolio.
  i.e. (3 x 400,000 = 1,200,000)

# Hedging Example

- Assume that three months later the stock portfolio has declined by 10% and the futures are also trading 10% lower at 3,600:
- Loss on stock portfolio = KES 120,000
- Gain on index futures = KES 120,000
  i.e. (3 x 100 x (4,000 – 3,600))
- The investor's loss on the stock portfolio is offset by the gain on the index futures.

# Hedging Example



# KEY BENEFITS AND RISKS OF DERIVATIVES MARKETS

# Benefits

**Hedging**

- Investors can protect their portfolios against adverse price movements by trading futures that reflect their stock portfolios.

**Wider variety of trading strategies**

- Access to strategies such as shorting securities, replication of index performance, arbitrage etc.

**Enhanced returns due to leverage**

- Since only a small margin is required upfront, the investor stands to gain significantly more than they put in.

# Benefits

**Lower transaction costs**

- The trading fees for single stock futures are 0.17% while fees for index futures are 0.14%(fees are based on the value traded)
- Trading fees on shares can range between 1% and 2%

**Less counterparty credit risk**

- By acting as the central counterparty for every trade, NSE Clear ensures that settlement is completed each day.
- The investor therefore does not need to worry about credit risk.

# Risks

| | |
|---|---|
| **Leverage** | • Since only a small margin is required upfront, the investor can also lose more than they put in. |
| **Default** | • While the NSE Clear will ensure settlement, investors need to ensure they have enough funds to cover daily settlement obligations or risk being closed out and penalized. |
| **Market Risk** | • This is the risk of incurring losses due to market prices moving against an investor's position. |

# Risks

**Liquidity Risk**

- This is the risk of an investor being unable to enter or exit a position without adversely affecting the market price.

**Operational Risk**

- Market participants need to ensure that they are familiar with all market procedures, policies and systems in order to avoid unintended losses arising from these areas.

# Key Terms to Remember

- **Long Position (to go long)** – Buyer (to buy)
- **Short Position (to go short)** – Seller (to sell)
- **Spot Price** – Price of the asset in the underlying market.
- **Futures Price** – Price of the futures contract in the derivatives market.
- **Contract Size** – The quantity of the underlying asset represented by one contract. E.g. one single stock future represents 1,000 underlying shares.

# Key Terms to Remember

**Contract Cycle** – The period for which a contract trades. The futures on the NSE will have three-month (near), six-month (middle) and twelve-month (far) cycles.

**Expiry Date** – The date on which a contract expires. This will be the third Thursday of the expiry month or the previous day if the expiry date is a public holiday.

**Cost of Carry** – The difference between the cost of financing an asset and the interest received on that asset.

# Key Terms to Remember

**Leverage** (also referred to as gearing) – Derivatives positions are said to be leveraged because the investor is only required to put up a relatively small portion of the value of the trade upfront (margin).

**Margin** – Collateral (usually cash) required from both the buyer and seller up front to open a position. Margins are returned to the investor once the position is closed.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