MARKET MAKING GUIDE

FINANCE CLUB

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INTRODUCTION

What is market-making?

Market-making is a trading practice where a financial organisation or individual, known as a market maker, regularly buys and sells a certain financial product, such as stocks, bonds, options, or cryptocurrencies, to maintain liquidity in a financial market.

Why are we writing this guide?

Quant companies like Optiver and Jane Street tend to delve into these games on market-making during their interviews. However, the internet does not have sufficient information on how they work.

IMPORTANCE OF MARKET MAKING

1. Market makers provide **liquidity** to financial markets by offering to **buy and sell assets** continuously. This ensures that there are readily available buyers and sellers for a particular asset, making it easier for traders to execute their orders at any time, even in volatile or less liquid markets.

2. Market makers help in the process of **price discovery**. By continuously quoting bid and ask prices, they help establish the fair market price for an asset. These prices are used as **reference points** for traders and investors when making buy or sell decisions.

3. Market makers aim to keep the **bid-ask spread** as narrow as possible. This benefits traders by reducing their trading costs, as they can buy at a lower price and sell at a higher price. Narrow spreads make markets more efficient and competitive.

TYPES OF MARKET-MAKING GAMES

Estimation and guessing

You'll be asked to "make a market" on something during the interview, like the **number of bicycles in Amsterdam**. This indicates that the interviewer wants you to provide **a buy and sell quote** for the estimated number of bicycles in Amsterdam. You create a market of 500K to 2M if you believe there are at least 500K bikes but not more than 2M motorcycles. The interviewer will buy it from you if they believe it is worth more than $2 million.

Group Discussion (GD)

The format of questions in a GD is similar to that in 'Estimation and Guessing'. However, in a group discussion, there is **one moderator** and **multiple participants** that act as market-makers. Each one proceeds to make a market based on the problem statement given by the moderator. The game proceeds with people making bids and offers on the basis of their confidence. One has to keep track of the flow of the game and their movements to calculate their overall loss/profit at the end. Stat Releases are essential in a GD.

TYPES OF MARKET-MAKING GAMES

Market of cards

Making the most profitable trades based on the predicted value of all the cards in play—all cards in the players' hands plus the three cards in the middle of the table—is the goal of the game. In order to establish a market, players must take into account both the cards they currently hold and the information they can infer from the **bids and asks** of other players. Three cards were also closed as the game began. One of the cards opens each round to reveal its worth. The game can be played in different ways with similar objectives

Guide to one of the ways the game could work

FINANCIAL TERMINOLOGY

Various Asset Classes

Stocks: Stock is used to describe the ownership certificates of any company

Bonds: Bonds are debt instruments issued by governments, municipalities, and corporations to raise capital.

Mutual Funds: Mutual funds pool money from multiple investors to invest in a diversified portfolio of stocks, bonds, or other assets

Exchange-Traded Funds (ETFs): ETFs are similar to mutual funds but are traded on stock exchanges like individual stocks

FINANCIAL TERMINOLOGY

Various Asset Classes

Real Estate: Real estate investing involves buying properties, such as residential homes, commercial buildings, or land, to generate income through rental yields or capital appreciation.

Commodities: Investing in commodities involves trading physical goods, such as gold, silver, oil, natural gas, agricultural products, or industrial metals.

Options: Options are derivative contracts that give the holder the right to buy or sell an underlying asset at a specified price within a specific time frame.

Cryptocurrencies: Cryptocurrencies, such as Bitcoin and Ethereum, are digital or virtual currencies that use cryptography for security.

FINANCIAL TERMINOLOGY

Participants in stock markets

Individual Investors: These are individual retail investors who buy and sell stocks and other securities for personal investment purposes.

Institutional Investors: Institutional investors are large financial organisations that invest on behalf of others.

Stockbrokers: Stockbrokers, also known as registered representatives or investment advisors, are licensed professionals who facilitate the buying and selling of securities on behalf of their clients.

Stock Exchanges: Stock exchanges are organized markets where securities are bought and sold. Examples include the New York Stock Exchange (NYSE), Nasdaq, National Stock Exchange(NSE)

Market Makers: Market makers are firms or individuals who facilitate trading by providing liquidity to the market. They quote both buy and sell prices for specific securities, ensuring that there is always a ready market for those Securities.

FINANCIAL TERMINOLOGY

Participants in stock markets

Investment Banks: Investment banks provide various financial services, including underwriting new securities offerings (IPOs), facilitating mergers and acquisitions, and offering advisory services to corporations.

Research Analysts: Research analysts work for brokerage firms, investment banks, or independent research firms. They analyze financial data, company reports, and market trends to provide insights and recommendations on stocks and other securities.

Regulators: Regulatory bodies, such as the Securities and Exchange Commission (SEC) in the United States or the SEBI in India, oversee and regulate the stock market to ensure fair practices, investor protection, and market integrity.

Clearinghouses and Custodians: Clearinghouses act as intermediaries between buyers and sellers, ensuring the smooth settlement of trades and managing risk associated with transactions.

TRADING STRATEGIES

Delta Trading:
Delta trading is an options trading strategy that involves trading options contracts based on the delta of the option. Delta measures the rate of change in the option's price in relation to the underlying asset's price.

Day Trading:
Day trading involves buying and selling financial instruments within the same trading day. Day traders aim to profit from short-term price fluctuations.

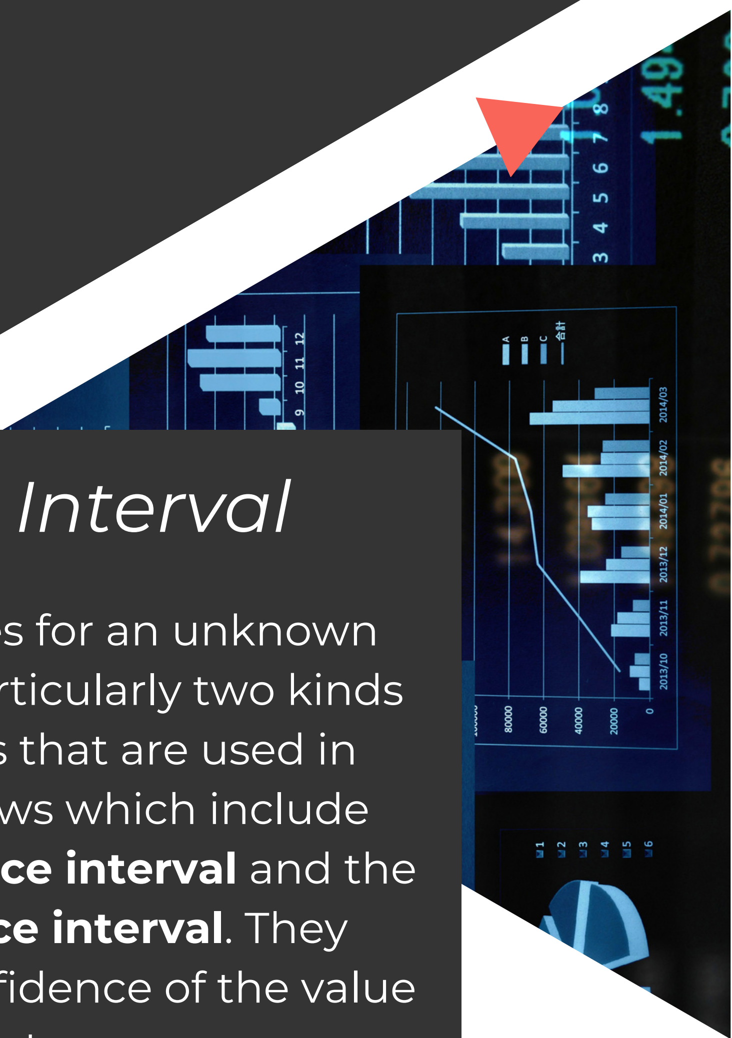
Swing Trading:
Swing trading is a medium-term trading strategy where traders hold positions for several days to weeks. It aims to capture price swings or trends.

Scalping:
Scalping is an ultra-short-term trading strategy where traders make numerous small trades throughout the day, aiming to profit from minor price movements.

Arbitrage Trading:
Arbitrage involves simultaneously buying and selling an asset (or related assets) in different markets or locations to profit from price discrepancies.

High-Frequency Trading (HFT):
High-frequency trading is a type of algorithmic trading that involves executing a large number of orders within very short time frames, often in microseconds.

MATHEMATICAL TERMINOLOGY



Confidence Interval

It is a range of estimates for an unknown parameter. There are particularly two kinds of confidence intervals that are used in market making interviews which include the **50 percent confidence interval** and the **90 percent confidence interval**. They determine a trader's confidence of the value lying within that range.

★★★★★

Normal Distribution

A normal distribution, also known as a Gaussian distribution, is a probability distribution that is symmetrical around the mean. It appears as a **bell curve** in graphical form.

TERMINOLOGY OF THE GAME

Trading Actions	
Lift (Hit)	Buy (sell) against a passive ask (bid) order
Join	Insert a passive order which adds volume to an existing price level, usually the top level
Dime	Insert a passive order which adds volume to a price which is better than the current top level
Pull	Delete an existing order
Market Activity	
Trade	When a buy and sell order are matched
Stat Release	Information released by the moderator that may help in making estimations
Fill	Another name for a trade that we did
Book Flip	The best bid and offer move up or down one tick
Uptick (Downtick)	Move up (down) in the price of an underlying, such as a future, stock or commodity. Usually involves a move of multiples of the tick size

TERMINOLOGY OF THE GAME

Tick Size	Smallest increment or decrement of price for an instrument
Spread	Difference between best bid and best offer in an instrument
Theo	The price that is calculated as fair given our parameters.
Choice Market	A market where you can buy or sell at the same price
Instruments	
Front Month	The closest monthly expiration
Back month(s)	The monthly expiries that are not the front one
Front Week	The same as Front Month but for weekly instruments
Back Week(s)	The same as Back Month but for weekly instruments
Roll	A future spread

TERMINOLOGY OF THE GAME

Verbal	
Yours	Sell to someone Example: If someone decided to pay 1500 for a trade and an other person decided to sell, he'll say 'Yours'.
Mine	Buy from someone Example: If someone decided to sell a trade at 1500 and an other person decided to buy, he'll say 'Mine'.

Thanks for reading

OUR TEAM

MANAGERS

Arjun Simha

Priyansh Gopawat

CONVENERS

Aatreyi

Druv

Nakul

Pratham

Raghavi

Suchit

Find us at

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- **Website** - https://financeclubiitb.in/
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