NSE Academy

Financial Markets Management

Class XII

Title: Financial Markets Management

Students' Handbook

NSQF Level – 4

Class XII

January 2022 Edition

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THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a [1]**SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the[2]unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

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1. Subs, by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "Sovereign Democratic Republic (w.e.f. 3.1.1977)
2. Subs, by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "unity of the Nation (w.e.f. 3.1.1977)

THE CONSTITUTION OF INDIA

Chapter IV A

FUNDAMENTAL DUTIES

ARTICLE 51A

Fundamental Duties - It shall be the duty of every citizen of India-

(a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;

(b) to cherish and follow the noble ideals which inspired our national struggle for freedom;

(c) to uphold and protect the sovereignty, unity and integrity of India;

(d) to defend the country and render national service when called upon to do so;

(e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;

(f) to value and preserve the rich heritage of our composite culture;

(g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;

(h) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(i) to safeguard public property and to abjure violence;

(j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;

[1](k) to provide opportunities for education to his/her child or, as the case may be, ward between age of 6 and 14 years.

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1. Subs. by the Constitution (Eighty - Sixth Amendment) Act, 2002

भारत का संविधान

उद्देशिका

हम, भारत के लोग, भारत को एक सम्पूर्ण [1]प्रभुत्व-संपन्न समाजवादी पंथनिरपेक्ष लोकतंत्रात्मक गणराज्य बनाने के लिए, तथा उसके समस्त नागरिकों को:

सामाजिक, आर्थिक और राजनैतिक न्याय,
विचार, अभिव्यक्ति, विश्वास, धर्म
और उपासना की स्वतंत्रता,
प्रतिष्ठा और अवसर की समता
प्राप्त कराने के लिए
तथा उन सब में व्यक्ति की गरिमा
[2]और राष्ट्र की एकता और अखंडता
सुनिश्चित करने वाली बंधुता बढ़ाने के लिए

दृढ़संकल्प होकर अपनी इस संविधान सभा में आज तारीख 26 नवम्बर, 1949 ई॰ को एतद्द्वारा इस संविधान को अंगीकृत, अधिनियमित और आत्मार्पित करते हैं।

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1. संविधान (बयालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977) से "प्रभुत्व-संपन्न लोकतंत्रात्मक गणराज्य" के स्थान पर प्रतिस्थापित।
2. संविधान (बयालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977) से "राष्ट्र की एकता" के स्थान पर प्रतिस्थापित।

भाग 4 क

मूल कर्त्तव्य

51 क. मूल कर्त्तव्य – भारत के प्रत्येक नागरिक का यह कर्त्तव्य होगा कि वह –

(क) संविधान का पालन करे और उसके आदर्शों, संस्थाओं, राष्ट्रध्वज और राष्ट्रगान का आदर करे;

(ख) स्वतंत्रता के लिए हमारे राष्ट्रीय आंदोलन को प्रेरित करने वाले उच्च आदर्शों को हृदय में संजोए रखे और उनका पालन करे;

(ग) भारत की प्रभुता, एकता और अखंडता की रक्षा करे और उसे अक्षुण्ण रखे;

(घ) देश की रक्षा करे और आह्वान किए जाने पर राष्ट्र की सेवा करे;

(ङ) भारत के सभी लोगों में समरसता और समान भ्रातृत्व की भावना का निर्माण करे जो धर्म, भाषा और प्रदेश या वर्ग पर आधारित सभी भेदभाव से परे हों, ऐसी प्रथाओं का त्याग करे जो स्त्रियों के सम्मान के विरुद्ध हैं;

(च) हमारी सामासिक संस्कृति की गौरवशाली परंपरा का महत्त्व समझे और उसका परीक्षण करे;

(छ) प्राकृतिक पर्यावरण की जिसके अंतर्गत वन, झील, नदी, और वन्य जीव हैं, रक्षा करे और उसका संवर्धन करे तथा प्राणिमात्र के प्रति दयाभाव रखे;

(ज) वैज्ञानिक दृष्टिकोण, मानववाद और ज्ञानार्जन तथा सुधार की भावना का विकास करे;

(झ) सार्वजनिक संपत्ति को सुरक्षित रखे और हिंसा से दूर रहे;

(ञ) व्यक्तिगत और सामूहिक गतिविधियों के सभी क्षेत्रों में उत्कर्ष की ओर बढ़ने का सतत प्रयास करे जिससे राष्ट्र निरंतर बढ़ते हुए प्रयत्न और उपलब्धि की नई उंचाइयों को छू ले;

[1](ट) यदि माता-पिता या संरक्षक है, छह वर्ष से चौदह वर्ष तक की आयु वाले अपने, यथास्थिति, बालक या प्रतिपाल्य के लिये शिक्षा के अवसर प्रदान करे।

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1. संविधान (छयासीवां संशोधन) अधिनियम, 2002 की धारा 4 द्वारा प्रतिस्थापित।

Preface

India is one of the fastest growing economies in the world. India also enjoys the great demographic advantage with one of the youngest populations. The young generation needs to be equipped with the skills of the 22nd century. The Ministry of Education, Government of India, is laying great emphasis on skill and competency development. Accordingly, in future all employment will be related to acquiring qualifications as per the National Skill Qualification Framework (NSQF).

Financial Skills are the ability to make informed judgements and decisions regarding the use and management of money. Financial Skills improve the quality of life and standard of living by promoting budgeting, disciplined savings, intelligent use of credit for home buying, planning for children's education, marriage, retirement, etc. Financial Skills are as essential life skills for the 22nd century as Computer Skills. The Central Board of Secondary Education (CBSE) has accordingly introduced Financial Skills in the School of CBSE from the academic session 2007-08 onwards as a part of Financial Markets Management Course at NSQF level I starting from Class IX, in collaboration with NSE Academy Ltd., a wholly owned subsidiary of the National Stock Exchange (NSE) of India Ltd. The present book on Financial Markets Managements is for Class XII – NSQF level IV. The content has been prepared in a very lucid manner covering multiple aspects of financial management. It provides a well-rounded understanding of the concepts of trading, the participants involved and the products offers – like equity, futures and options. This will empower the students to understand various investment and trading practices and also develop perspectives to make sound financial decisions for financial wellbeing.

The Board takes this opportunity to thankfully acknowledge the commendable work of NSE Academy in providing support to CBSE for successfully launching and implementing FMM Course under NSQF. NSE Academy is helping CBSE with Training of teachers, joint awareness workshops, etc. The team at NSE Academy: Shri Ravi Varanasi – Chief - Business Development, Shri Abhilash Misra – Chief Executive Officer and Dr. Agna Fernandez – Associate Vice President (Learning & Development), deserves a special mention for their contribution in promoting financial market education with CBSE.

Comments and suggestions are welcome for further improvement of the Book.

Sh. Manoj Ahuja, IAS
Chairman, CBSE

About NSE Academy

NSE Academy is a subsidiary of National Stock Exchange of India. NSE Academy straddles the entire spectrum of financial courses for students of Class VIII and right up to MBA professionals. NSE Academy has tied up with premium educational institutes in order to develop pool of human resources having right skills and expertise which are apt for the financial market. Guided by our mission of spreading financial literacy for all, NSE Academy has constantly innovated its education template, this has resulted in improving the financial well-being of people at large in society. Our education courses have so far facilitated more than 41.8 lakh individuals become financially smarter through various initiatives.

NSE Academy's Certification in Financial Markets (NCFM)

NCFM is an online certification programme aimed at upgrading skills and building competency.

The programme has a widespread reach with testing centres present at more than 154+ locations across the country.

The NCFM offers certifications ranging from the Basic to Advanced.

One can register for the NCFM through:

a. Online mode by creating an online login id through the link 'Education' -> 'Certifications' -> 'Online Register / Enroll' available on the website www.nseindia.com
b. Offline mode by filling up registration form available on the website www.nseindia.com -> 'Education' -> 'Certifications' -> 'Register for Certification'

Once registered, a candidate is allotted a unique NCFM registration number along with an online login id and can avail of facilities like SMS alerts, online payment, checking of test schedules, online enrolment, profile update etc. through their login id.

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Chapter 4: Financial Statement Analysis

Chapter 5: Introduction to Derivatives

Chapter 6: Future Contracts, Mechanism and Pricing

List of Abbreviations

ADs	Authorised Dealers
AT	Algorithmic Trading
AI	Auction Inquiry
AL	Activity Log
ASBA	Application Supported by Blocked Amount
ADRs	American Depository Receipts
AL	Activity Log
AON	All or None
BOVL	Branch Order Value Limit
BSE	Bombay Stock Exchange
BM	Branch Manager
CADT	Client Allocation Details
CDS	Currency Derivatives Segment
CD	Cum-Dividend
CB	Cum-Bonus
CLI	Client
CI	Cum-Interest
CM	Clearing Member
CR	Cum-Rights
CSD	Collateral Security Deposit
CDSL	Central Depositories Services Ltd.
CM	Capital Market
Co.	Company
CTCL	Computer to Computer Link
DEA	Department of Economic Affairs
DFDS	Demat Final Delivery Statement
DFRS	Demat Final Receipt Statement
DMA	Direct Market Access
DP	Depository Participant
DPG	Dominant Promoter Group
DQ	Disclosed Quantity
DvP	Delivery versus Payment
ECBs	External Commercial Borrowings
EPI	Early Pay-In
FCCBs	Foreign Currency Convertible Bonds
FI	Financial Institution
FII	Foreign Institutional Investors
FIPB	Foreign Investment Promotion Board
F&O	Futures and Options
FTP	File Transfer Protocol
FPO	Follow-on Public Offer
GDRs	Global Depository Receipts
HUF	Hindu Undivided Family

ICDR	Issue of Capital and Disclosure Requirements
IEPF	Investor Education and Protection Fund
IFSD	Initial Free Security Deposit
INST	Institutional
IOC	Immediate Or Cancel
IPO	Initial Public Offering
IPF	Investor Protection Fund
ISC	Investor Service Cell
ISIN	International Securities Identification Number
KYC	Know Your Client
LTP	Last Trade Price
MBP	Market By Price
MAC	Membership Approval Committee
MF	Mutual Funds
MI	Market Inquiry
MM	Market Movement
MCA	Member Constituent Agreement
MCA	Ministry of Corporate Affairs
MTM	Mark To Market
MW	Market Watch
NEAT	National Exchange for Automated Trading
NCFM	NSE's Certification in Financial Markets
NCIT	Non Custodian Institutional Trade
ND	No Delivery
NISM	National Institute of Securities Markets
NOC	No Objection Certificate
NSCCL	National Securities Clearing Corporate Ltd.
NSDL	National Securities Depository Ltd.
NSE	National Stock Exchange
NT	Negotiated Trade
O	Odd Lot Market
OCXL	Order Cancellation
OTC	Over The Counter
OECLOB	Open Electronic Consolidated Limit Order Book
OO	Outstanding Orders
OM	Order Modification
OS	Order Status
PAN	Permanent Account Number
PCM	Professional Clearing Member
PFRDA	Pension Fund Regulatory and Development Authority
PRO	Proprietary
PT	Previous Trades
RBI	Reserve Bank of India
RDD	Risk Disclosure Document
RETDEBT	Retail Debt

RDM	Retail Debt Market
SAT	Securities Appellate Tribunal
SBTS	Screen Based Trading System
SC(R)A	Securities Contract (Regulations) Act, 1956
SC(R)R	Securities Contract (Regulations) Rules, 1957
SEBI	Securities and Exchange Board of India
SL	Stop Loss
SLBS	Securities Lending and Borrowing Scheme
SGF	Settlement Guarantee Fund
SQ	Snap Quote
SRO	Self Regulatory Organization
STT	Securities Transaction Tax
SURCON	Surveillance and Control
T+2	Second working day from the Trading Day
TFT	Trade For Trade
TFTS	Trade for Trade Surveillance
TM	Trading Member
UCC	Unique Client Code
UDR	Unique Documentary Requirement
UTI	Unit Trust of India
UOVL	User Order Value Limit
VaR	Value at Risk
VIX	Volatility Index
VSAT	Very Small Aperture Terminal
WDM	Wholesale Debt Market
XB	Ex-Bonus
XD	Ex-Dividend
XI	Ex-Interest
XR	Ex-Rights

Chapter 1: Introduction to Securities Market and Trading Membership

In this Chapter, you will learn:

- Role of Primary Market & Secondary Market
- Market Capitalization and its ratio, Turnover and its Ratio
- Market Participants, Segments and products
- Stock Brokers, Sub brokers, Brokerage, NSE Membership and its criteria
- Surrendering, Suspension and expulsion of Membership
- Broker and Client relations
- Demat Accounts

1.1 What are Market Segments?

Securities Markets provide a channel for allocation of savings to those who have a productive need for them. The Securities Market has two interdependent and inseparable segments:

(i) Primary Market
(ii) Secondary Market

1.1.1 What is a Primary Market?

Primary Market provides an opportunity to the issuers of securities, both Government and corporations, to raise resources to meet their requirements of investment. Securities, in the form of equity or debt, can be issued in domestic/international markets at face value, discount or premium.

The primary market issuance is done either through public issues or private placement. Under Companies Act, 1956, an issue is referred as public if it results in allotment of securities to 50 investors or more. However, when the issuer makes an issue of securities to a select group of persons not exceeding 49 and which is neither a rights issue nor a public issue it is called a private placement.

1.1.2 What is a Secondary Market?

Secondary Market refers to a market where securities are traded after being offered to the public in the primary market or listed on the Stock Exchange. Secondary market comprises of equity, derivatives and the debt markets. The secondary market is operated through two mediums, namely, the Over-the-Counter (OTC) market and the Exchange-Traded market. OTC markets are informal markets where trades are negotiated.

1.2 What are the key indicators of a Securities Market?

1.2.1 What is Index?

An Index is used to give information about the price movements of products in the financial, commodities or any other markets. Stock market indices are meant to capture the overall behaviour of the equity markets. The stock market index is created by selecting a group of stocks that are representative of the whole market or a specified sector or segment of the market. The bluechip index of NSE is CNX NIFTY.

1.2.2 What is Market Capitalization?

Market Capitalization is defined as value of all listed shares on the country's exchanges. It is computed on a daily basis. Market Capitalization of a particular company on a particular day can be computed as product of the number of shares outstanding and the closing price of the share. Here the number of outstanding shares refers to the issue size of the stock.

Market Capitalisation = Closing price of share * Number of outstanding shares

Similarly, to compute the market capitalization of all companies listed on an Exchange we aggregate the market capitalization of all the companies traded on the Exchange.

1.2.3 What is Market Capitalization Ratio?

The Market Capitalization Ratio is defined as market capitalization of stocks divided by GDP. It is used as a measure of stock market size.

1.2.4 What is Turnover?

Turnover for a share is computed by multiplying the traded quantity with the price at which the trade takes place. Similarly, to compute the turnover of the companies listed at the Exchange we aggregate the traded value of all the companies traded on the Exchange.

1.2.5 What is Turnover Ratio?

The Turnover Ratio is defined as the total value of shares traded on a country's stock Exchange for a particular period divided by market capitalization at the end of the period. It is used as a measure of trading activity or liquidity in the stock markets.

Turnover Ratio = Turnover at Exchange / Market Capitalisation at Exchange

1.3 What is meant by Products and Participants?

1.3.1 What are Products?

Financial Markets facilitate reallocation of savings from savers to entrepreneurs. Savings are linked to investments by a variety of intermediaries through a range of complex financial products called **"securities"**. Under the **Securities Contracts (Regulation) Act [SC(R)A], 1956**, "securities" include (i) shares, bonds, scrips, stocks or other marketable securities of like nature in or of any incorporate company or body corporate, (ii) government securities, (iii) derivatives of securities, (iv) units of collective investment scheme, (v) interest and rights in securities, and security receipt or any other instruments so declared by the central government. Broadly, securities can be of three types - equities, debt securities and derivatives.

1.3.2 Who are Participants?

The Securities Market has essentially three categories of participants (i) the investors, (ii) the issuers, (iii) the intermediaries (Figure 1.1). These participants are regulated by the Securities and Exchange Board of India (SEBI), Reserve Bank of India (RBI), Ministry of Corporate Affairs (MCA) and the Department of Economic Affairs (DEA) of the Ministry of Finance.

Figure 1.1 Market Participants

Table 1.1 below provides the information on Market participants in India.

Table: 1.1 Market Participants in India
Investors
Individual Investors
Corporate Investors
Foreign Venture Capital Investors
FIIs
Depositories
Stock Exchanges
With Equities Trading
With Debt Market Trading
With Derivative Trading
With Currency Derivatives
Brokers
Corporate Brokers
Sub-brokers
Portfolio Managers
Custodians
Registrars to an issue & Share Transfer Agents
Primary Dealers
Merchant Bankers
Bankers to an Issue
Debenture Trustees
Underwriters
Venture Capital Funds
Mutual Funds
Collective Investment Schemes

1.4 What are the different Market Segments and their products?

The Exchange (NSE) provides trading in **four different segments - Wholesale Debt Market, Capital Market, Futures and Options and Currency Derivatives Segment** as depicted in the figure 1.2 below.

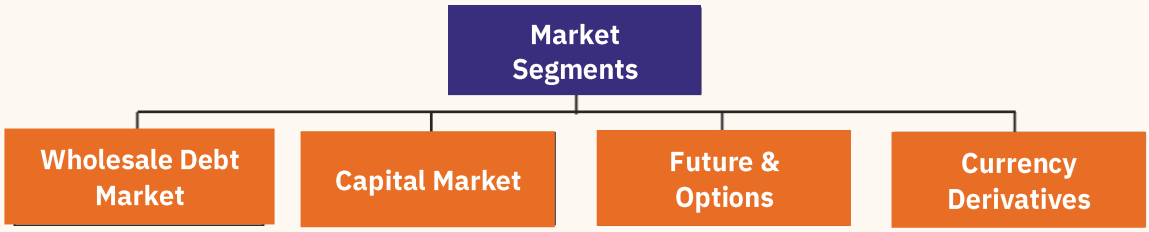


Figure 1.2 Market Segments

(i) **Wholesale Debt Market (WDM) Segment**: This segment at NSE commenced its operations in June 1994. It provides the trading platform for wide range of debt securities which includes State and Central Government securities, T-Bills, PSU Bonds, Corporate debentures, Commercial Papers, Certificate of Deposits etc.

(ii) **Capital Market (CM) Segment**: This segment at NSE commenced its operations in November 1994. It offers a fully automated screen-based trading system, known as the National Exchange for Automated Trading (NEAT) system. Various types of Securities, like equity shares, warrants, debentures etc., are traded on this system.

(iii) **Futures & Options (F&O) Segment**: This segment provides trading in derivatives instruments like index futures, index options, stock options, and stock futures, and commenced its operations at NSE in June 2000.

(iv) **Currency Derivatives Segment (CDS) Segment**: This segment at NSE commenced its operations on 29th August, 2008, with the launch of currency futures trading in US Dollar-Indian Rupee (USD-INR). Trading in other currency pairs like Euro-INR, Pound Sterling-INR and Japanese Yen-INR was further made available for trading in February 2010. 'Interest rate futures' was another product made available for trading on this segment with effect from 31st August, 2009.

1.5 What are the reforms in the Indian Securities Markets?

Over a period, the Indian securities market has undergone remarkable changes and grown exponentially, particularly in terms of resource mobilisation, intermediaries, the number of listed stocks, market capitalisation, turnover and investor population. The following paragraphs list the principal reform measures undertaken since 1992.

Creation of Market Regulator: Securities and Exchange Board of India (SEBI), the securities market regulator in India, was established under SEBI Act 1992, with the main objective and responsibility for (i) protecting the interests of investors in securities, (ii) promoting the development of the securities market, and (iii) regulating the securities market.

Screen Based Trading: Prior to setting up of NSE, the trading on stock exchanges in India was based on an open outcry system. The system was inefficient and time consuming because of its inability to provide immediate matching or recording of trades. In order to provide efficiency, liquidity and transparency, NSE introduced a nation-wide on-line fully automated screen-based trading system (SBTS) on the CM segment on November 3, 1994.

Reduction of Trading Cycle: Earlier, the trading cycle for stocks, based on type of securities, used to vary between 14 days to 30 days and the settlement involved another fortnight. The Exchanges, however, continued to have different weekly trading cycles, which enabled shifting of positions from one Exchange to another. It was made mandatory for all Exchanges to follow a uniform weekly trading cycle in respect of scrips not under rolling settlement. In December 2001, all scrips were moved to rolling settlement and the settlement period was reduced progressively from T+5 to T+3 days. From April 2003 onwards, T+2 days settlement cycle is being followed.

Equity Derivatives Trading: In order to assist market participants in managing risks better through hedging, speculation and arbitrage, SC(R) A was amended in 1995 to lift the ban on options in securities. Trading in derivatives, however, took off in 2000 with index futures after suitable legal and regulatory framework was put in place. The market presently offers index futures, index options, single stock futures and single stock options.

Demutualisation: Historically, stock exchanges were owned, controlled and managed by the brokers. In case of disputes, integrity of the stock exchange suffered. NSE, however, was set up with a pure demutualised governance structure, having ownership, management and trading with three different sets of people. Currently, all the stock exchanges in India have a demutualised set up.

Dematerialisation: As discussed before, the old settlement system was inefficient due to (i) the time lag for settlement and (ii) the physical movement of paper-based securities. To obviate these problems, the Depositories Act, 1996 was passed to provide for the establishment of depositories in securities with the objective of ensuring free transferability of securities with speed and accuracy. There are two depositories in India, viz. NSDL and CDSL. They have been set up to provide instantaneous electronic transfer of securities. Demat (Dematerialised) settlement has eliminated the bad deliveries and associated problems. To prevent physical certificates from sneaking into circulation, it has been made mandatory for all newly issued securities to be compulsorily traded in dematerialised form. Now, the public listed companies making IPO of any security for Rs.10 crore or more have to make the IPO only in dematerialised form.

Clearing Corporation: The anonymous electronic order book ushered in by the NSE did not permit members to assess credit risk of the counter-party and thus necessitated some innovation in this area. To address this concern, NSE had set up the first clearing corporation, viz. National Securities Clearing Corporation Ltd. (NSCCL), which commenced its operations in April 1996.

Investor Protection: In order to protect the interest of the investors and promote awareness, the Central Government (Ministry of Corporate Affairs*) established the Investor Education and Protection Fund (IEPF) in October 2001. With the similar objectives, the Exchanges and SEBI also maintain investor protection funds to take care of investor claims.

SEBI and the stock exchanges have also set up investor grievance / service cells for redress of investor grievance. All these agencies and investor associations also organise investor education and awareness programmes.

**Earlier known as the Department of Corporate Affairs*

Globalisation: Indian companies have been permitted to raise resources overseas through issue of ADRs, GDRs, FCCBs and ECBs. Further, FIIs have been permitted to invest in all types of securities, including government securities and tap the domestic market. The investments by FIIs enjoy full capital account convertibility. They can invest in a company under portfolio investment route up to 24% of the paid-up capital of the company. This can be increased up to the sectoral cap/statutory ceiling, as applicable to the Indian companies concerned, by passing a resolution of its Board of Directors followed by a special resolution to that effect by its general body. The Indian stock exchanges have been permitted to set up trading terminals abroad. The trading platform of Indian exchanges is now accessible through the Internet from anywhere in the world. RBI permitted two-way fungibility for ADRs / GDRs, which means that the investors (foreign institutional or domestic) who hold ADRs / GDRs can cancel them with the depository and sell the underlying shares in the market.

Launch of India VIX*: Volatility index is a measure of market's expectation of volatility over the near term. It measures the amount by which an underlying Index is expected to fluctuate in the near term, based on the order book of the underlying index options. India's first volatility index, India VIX (based on the Nifty 50 Index Option prices) was launched by NSE in April 2008.

***"VIX" is a trademark of Chicago Board Options Exchange, Incorporated ("CBOE") and Standard & Poor's has granted a license to NSE, with permission from CBOE, to use such mark in the name of the India VIX and for purposes relating to the India VIX.*

Direct Market Access: In April 2008, SEBI allowed the direct market access (DMA) facility to the institutional investors. DMA allows brokers to offer their respective clients, direct access to the Exchange trading system through the broker's infrastructure without manual intervention by the broker.

Launch of Securities Lending & Borrowing Scheme: In April 2008, the Securities Lending & borrowing mechanism was allowed. It allows market participants to take short positions effectively with less cost.

Launch of Currency Futures: On August 29, 2008, NSE launched trading in currency future contracts in the USD-INR pair for the first time in India. Trading in other currency pairs like Euro – INR, Pound Sterling – INR and Japanese Yen was further made available for trading in March 2010.

ASBA: Application Supported by Blocked Amount (ASBA) is a major primary market reform. It enables investors to apply for IPOs / FPOs and rights issues without making a payment. Instead, the amount is blocked in investors' own account and only an amount proportionate to the shares allotted goes out when allotment is finalized.

Launch of Interest Rate Futures: On 31st August, 2009, futures on interest rate were launched on the National Stock Exchange.

Issue of Capital and Disclosure Requirements (ICDR) Regulations 2009: In August 2009, the SEBI issued Issue of Capital and Disclosure Requirements (ICDR) Regulations 2009, replacing the Disclosure and Investor

Protection (DIP) Guidelines 2000. ICDR Regulations 2009 would govern all disclosure norms regarding issue of securities.

1.6 Who is a Stock Broker?

A **Stock Broker** is an intermediary who arranges to buy and sell securities on the behalf of clients (the buyer and the seller). According to SEBI (Stock Brokers and Sub-Brokers) Regulations, 1992, a stockbroker is member of a stock exchange and requires to hold a certificate of registration from SEBI in order to buy, sell or deal in securities. SEBI grants a certificate to a stock broker subject to the conditions that the Stock Broker:

(a) holds the membership of any stock exchange;
(b) should abide by the rules, regulations and bye-laws of the stock exchange or stock exchanges of which he is a member;
(c) should obtain prior permission of SEBI to continue to buy, sell or deal in securities in any stock exchange in case of any change in the status and constitution;
(d) should pay the amount of fees for registration in the prescribed manner; and
(e) should take adequate steps for redress of grievances of the investors within one month of the date of the receipt of the complaint and keep SEBI informed about the number, nature and other particulars of the complaints.

While considering the application of an entity for the grant of registration as a stock broker, SEBI checks out if the applicant:

(a) is eligible to be admitted as a member of a stock exchange;
(b) has the necessary infrastructure like adequate office space, equipment and manpower to effectively discharge his activities;
(c) has any past experience in the business of buying, selling or dealing in securities;
(d) is subjected to any disciplinary proceedings under the rules, regulations and bye-laws of a stock exchange with respect to his business as a stock-broker involving either himself or any of his partners, directors or employees.

1.7 Who can become a Member of NSE?

There are no entry/exit barriers to the membership of NSE. Anybody can become a member by complying with the prescribed eligibility criteria and exit by surrendering membership without any hidden cost.
The members are admitted to different segments of the Exchange subject to the provisions of the Securities Contracts (Regulation) Act, 1956, the SEBI Act, 1992, the rules, circulars, notifications, guidelines, etc. issued hereunder and the byelaws, rules and regulations of the Exchange. The trading members of NSE have certain benefits, which includes:

- Access to a nation-wide trading facility for equities, derivatives, debt and hybrid instruments / products;
- Ability to provide a fair, efficient and transparent securities market to the investors;
- Use of state-of-the-art electronic trading systems and technology;
- Dealing with an organisation which follows strict standards for trading & settlement at par with those available at the top international bourses and constantly strives to move towards a global marketplace in the securities industry.

New Membership

The persons eligible to become trading members of Exchange are:

(a) Individuals;
(b) Partnership firms registered under the Indian Partnership Act, 1932;
(c) Limited Liability Partnerships registered under the Limited Liability Partnership Act, 2008;
(d) Institutions, including subsidiaries of banks engaged in financial services;
(e) Banks for Currency Derivatives Segment;
(f) Body corporates including companies as defined in the Companies Act, 2013. A company is eligible to be admitted as a member if:
    (i) It is formed in compliance with provisions of Companies Act 2013 which mentions about the mode of forming incorporated company;
    (ii) It complies with the financial requirements and norms as may be specified by SEBI;
    (iii) The directors of the company shouldn't have been disqualified for being members of a stock exchange and should not have held the offices of the directors in any company which had been a member of the stock exchange and had been declared defaulter or expelled by the stock exchange; and
    (iv) Such other persons or entities as may be permitted from time to time by RBI/SEBI under the Securities Contracts (Regulations) Rules, 1957.

Membership for Different Segments at NSE

Persons or Institutions desirous of securing admission as members (stock brokers) on the Exchange may apply for membership on any one of the following segment groups:

(a) Wholesale Debt Market (WDM) Segment
(b) Capital Market (CM) segment
(c) Capital Market (CM) and Wholesale Debt Market (WDM) segment
(d) Capital Market (CM) and Futures & Options (F&O) segment
(e) Capital Market (CM), Futures & Options (F&O) segment and Wholesale Debt Market (WDM) segment
(f) Currency Derivatives (CD) segment with or without the above-mentioned segments.
(g) Clearing Membership of National Securities Clearing Corporation Ltd. (NSCCL) as a Professional Clearing Member (PCM). Professional Clearing Members do not trade but only clear and settle trades executed by other trading members (TMs). Professional clearing membership is only applicable for the F&O and Currency Derivatives segments.

Two types of memberships are offered:

- **Normal** - Unrestricted business expansion
- **Alpha** - For focused proprietary trading with limited clientele

Following categories are available under **Normal Membership**:

Types of Membership	Cash Segment	Futures & Option Segment	Currency Derivatives Segment	Debt Segment
Trading Member	√	√	√	√
Trading Cum Self Clearing Member	√	√	√	√
Trading Cum Clearing Member	–	√	√	√
Professional Clearing Member	–	√	√	√

Membership of Alpha can be taken in combination with any of the above segments except for Futures & Options segment which has to be taken in combination with Cash segment.
Following categories are available under **Alpha Membership**:

Types of Membership	Cash Segment	Futures & Option Segment
Trading Member	√	√
Trading Cum Self Clearing Member	√	√
Trading Cum Clearing Member	–	√

In addition to the trading membership in the F&O segment, the trading member can also take two types of clearing membership in the F&O Segment i.e., as a clearing member and self-clearing member. The self-clearing members clear and settle the trades executed by them only, either on their account or on account of their clients. Trading members cum clearing members can clear and settle their own trades as well as trades of other trading members.

Trading members registered in F&O segment and CD segment are eligible to trade in interest rate futures market.

Membership can be taken for any segments individually or in combination.

Trading Member	This category of membership entitles a member to execute trades on his own account as well as on account of his clients but, clearing and settlement of trades executed through the Trading Member would have to be done through a Trading-cum Clearing Member or Professional Clearing Member of the Exchange
Trading Cum Self Clearing Member	This category of membership entitles a member to execute trades and to clear and settle the trades executed on his own account as well as on account of his clients.

Trading Cum Clearing Member	This category of membership entitles a member to execute trades on his own account as well as on account of his clients and to clear and settle trades executed by themselves as well as by other trading members who choose to use clearing services of the member.
Professional Clearing Member	This category of membership entitles a member to clear and settle trades of such members of the Exchange who choose to clear and settle their trades through this member.

Eligibility Criteria for Membership at NSE

The standards for admission of members are laid down by the Exchange in terms of corporate structure (shareholding pattern), capital adequacy (Paid up capital), net worth, Interest Free Security Deposit (IFSD), Collateral Security Deposit (CSD), track record, education, experience etc. This is done to ensure quality broking services so as to build and sustain confidence among investors in the Exchange's operations.

Corporate Structure (Shareholding Pattern)

Securities markets are inherently volatile and risky, and hence risk containment mechanisms are put in place by the stock exchange. One such risk containment tool is the concept of 'Dominant Promoter/Shareholder Group' which is very unique for applicants acquiring membership on the NSE. The shareholders holding the majority of shares have a dominant role in the affairs of the company. In case of any default by the broking entity, the Exchange should be able to identify and take action against the persons who are behind the company. The Exchange, therefore, needs to know the background, financial soundness and integrity of the shareholders holding such controlling interest. Hence, during the admission process (explained in the later section of the book) the dominant shareholders are called for an interview with the Membership Recommendation Committee (MRC).

Dominant Promoter norms are applicable to all trading members. The norms relating to dominant promoters falls in different categories such as unlisted corporate trading member, listed corporate trading member, corporate shareholders, banks, central or state government owned finance and development institutions and foreign entities, which are given as under:

(i) **Unlisted Corporate Trading Member**: In case of an unlisted corporate trading member, there are three conditions under which the corporate trading member will be eligible to constitute dominant promoter group. These conditions are given below:

If a person holds 51% of shares in the trading member corporate on his own or together with

(a) his relatives as defined under Companies Act 2013

(b) person(s) falling within the definition of 'control'* under the SEBI (Substantial Acquisition of Shares and Takeovers) Regulations, 1997.

**Here 'control' means the right to appoint majority of directors or to control the management or policy decisions by virtue of the shareholding or management rights.*

(c) the support of strategic investors in such corporate trading member. (Strategic investors mean the corporates or individual investors that add value to investments they make through industry and personal ties that can assist companies in raising additional capital including financial investors, venture capitalists and others who invest primarily with the aim of generating a large return on their investment).

(ii) **Listed Corporate Trading Member:** In case of listed corporate trading members, any person(s) identified as promoter in the offer document or in any document for offer of securities to the public or existing shareholders or in the shareholding pattern disclosed by the corporate trading member under the provisions of the Listing Agreement, whichever is later, would be eligible to constitute dominant promoter group.

(iii) **Corporate Shareholders to be identified as Dominant Shareholders:** Corporate shareholder is allowed to be identified as dominant shareholders (Dominant Promoter Group - DPG) of a corporate trading member provided that the corporate shareholder identifies any person or persons as their dominant promoter group as per the aforesaid norms applicable to the corporate trading member. In case the dominant promoter group consists of more than one corporate shareholder, the dominant promoter group should be identified separately for each such corporate shareholder.

(iv) **Banks, Central or State Government owned Finance and/or Development Institutions**: The following entities are allowed to be identified as dominant shareholder(s) provided they have a net worth of at least Rs.50 crores:

(a) Scheduled Banks;

(b) Central or State Government owned Finance and/or Development Institutions;

(c) Any financial institution registered and regulated by any regulatory authority such as RBI, SEBI, IRDAI;

(d) Any other entity that is fit to be identified as dominant shareholder in the opinion of relevant authority.

(v) **Foreign Entities:** Foreign entities are allowed to take trading membership of the Exchange through their Indian subsidiary under the automatic approval route permitted by the government, subject to compliance with the following guidelines of the RBI in this regard.

(a) The promoting foreign entity or its subsidiary should be either a bank or insurance organisation regulated by the Central Bank or such other appropriate regulatory authority of that country

OR

The promoting foreign entity or its subsidiary should be broking house/ participant in the securities market that is registered or regulated by the relevant regulatory authority of that country and that the relevant authority should be a member of International Organisation of Securities Commission (IOSCO). The entity should have a sound track record.

OR

The promoting foreign entity is one whose domestic arm or subsidiary is registered with SEBI for participation in any domestic venture for custodial or Asset Management services.

(b) The promoting foreign entity shall hold, directly or indirectly not less than 51 % of the controlling stake in the applicant company proposing to take the trading membership of the Exchange.

(c) The net worth of the entity having controlling stake in the applicant company or the promoting foreign entity should be at least Rs. 50 Crores.

A foreign entity is allowed to become part of the dominant promoter group of an existing trading member corporate provided it meets the dominant promoter group norms as applicable to Indian entities, FIPB (Foreign Investment Promotion Board) norms / RBI norms and any other requirements of the Exchange / SEBI as may be applicable from time to time.

Corporate trading members will also be allowed to change their shareholding pattern so long as such change is within the above norms and the existing Dominant Promoter Group (DPG) continues to hold controlling

interest and prior approval from the Exchange is obtained. Once a DPG is identified during admission, the same has to be maintained at all points of time. In case of any change in the DPG, the trading member is required to seek fresh approval of the Exchange as it is done at the time of admission of new trading member and rules relating to the same apply. Inter-se transfer of shareholding among the dominant promoters, however will be exempt from the formalities as required in case of new trading membership. Any changes in the shareholding require prior approval from the Exchange, except in case of shareholding changes related to public shareholding in a listed company.

Failure to maintain the required level of shareholding by DPG is treated as a breach of the continuing membership norms and tantamount to reconstitution of the trading member corporate. This is because the existing DPG would no longer hold controlling interest in the trading member corporate or alternatively a new group would have emerged with controlling stake. In such case the Exchange can initiate disciplinary action including withdrawal of trading facility of such trading members.

Net Worth and Other Deposit Requirements

The net worth of the member is calculated as summation of Capital and free reserves less non allowable assets. Non allowable assets include fixed assets, pledged securities, member's card, non-allowable securities (unlisted securities), bad deliveries, doubtful debts and advances, prepaid expenses, intangible assets and 30% of marketable securities.

Deposit requirements are of two types i.e., Interest Free Security Deposit (IFSD) and Collateral Security Deposit (CSD). IFSD has to be in liquid cash while CSD can be in cash or non-cash form. Cash component means cash, bank guarantees, fixed deposit receipts, units of money market mutual fund and gilt funds and any other form of collateral as may be prescribed from time to time. Non-cash component means all other forms of collateral deposits like deposit of approved list of demat securities and units of the other mutual funds and any other form of collateral as may be prescribed from time to time.

The eligibility criteria for corporates, individuals and partnership firms for different segments of the Exchange are explained in Table 2.1 and 2.2 below.

Table 2.1: Deposit & Net Worth Requirements (Corporates / Limited Liability Partnership)

Deposit Structure (in Lakhs)								
Segment	**Type of Membership**		**Cash-NSEIL**	**Non-Cash NSEIL**	**Cash NSCCL**	**Non-Cash NSCCL**	**Total**	**Net Worth**
Capital Market	TM & SCM		85	-	15	25	125	100
Futures & Options	TM		25	-	-	–	25	100
	TM & SCM		25	-	25	25	75	100
	TM & CM		25	-	25	25	75	300
	PCM		-	-	25	25	50	300
Currency Derivatives Segment	Existing Members	TM	2	8	-	–	10	100
		TM & SCM	2	8	25	25	60	500
		TM & CM	2	8	25	25	60	1000
	New Members	TM	2	13	-	–	15	100
		TM & SCM	2	18	25	25	70	500
		TM & CM	2	18	25	25	70	1000
	PCM		-	-	25	25	50	1000

* TM = Trading Membership
* TM & SCM = Trading and Self Clearing Membership
* TM & CM = Trading and Clearing Membership
* PCM = Professional Clearing Membership

Table 2.2: Deposit & Net Worth Requirements (Individual/Partnership Firms)

Deposit Structure (in lakhs)								
Segment	**Type of Membership**		**Cash-NSEIL**	**Non-Cash NSEIL**	**Cash NSCCL**	**Non-Cash NSCCL**	**Total**	**Net Worth**
Capital Market	TM & SCM		26.5	-	6	17.5	50	75
Futures & Options	TM		25	-	-	-	25	75
	TM & SCM		25	-	25	25	75	100
	TM & CM		25	-	25	25	75	300
Currency Derivatives Segment	Existing Members	TM	2	8	-	-	10	100
		TM & SCM	2	8	25	25	60	500
		TM & CM	2	8	25	25	60	1000
	New Members	TM	2	13	-	-	15	100
		TM & SCM	2	18	25	25	70	500
		TM & CM	2	18	25	25	70	1000

* TM = Trading Membership
* TM & SCM = Trading and Self Clearing Membership
* TM & CM = Trading and Clearing Membership
* PCM = Professional Clearing Membership

In addition to the individuals, corporates and partnership firms, Banks authorized by the Reserve Bank of India under section 10 of the Foreign Exchange Management Act, 1999 as 'AD Category - I bank' are permitted to become trading and clearing members of the currency derivatives market of the recognized stock exchanges, on their own account and on behalf of their clients, subject to minimum prudential requirements of minimum net worth of Rs. 500 crores, minimum CRAR of 10 per cent, net NPA not exceeding 3 per cent and net profit should have been made for last 3 years.

The AD Category - I banks which fulfil the prudential requirements are required to lay down detailed guidelines with the approval of their Boards for trading and clearing of currency derivatives contracts and management of risks. AD Category - I banks which do not meet the above minimum prudential requirements and AD Category - I banks which are Urban Co- operative banks or State Co-operative banks can participate in the currency derivatives market only as clients, subject to approval therefore from the respective regulatory Departments of the Reserve Bank.

1.7.1 What is the Admission Procedure for New Membership

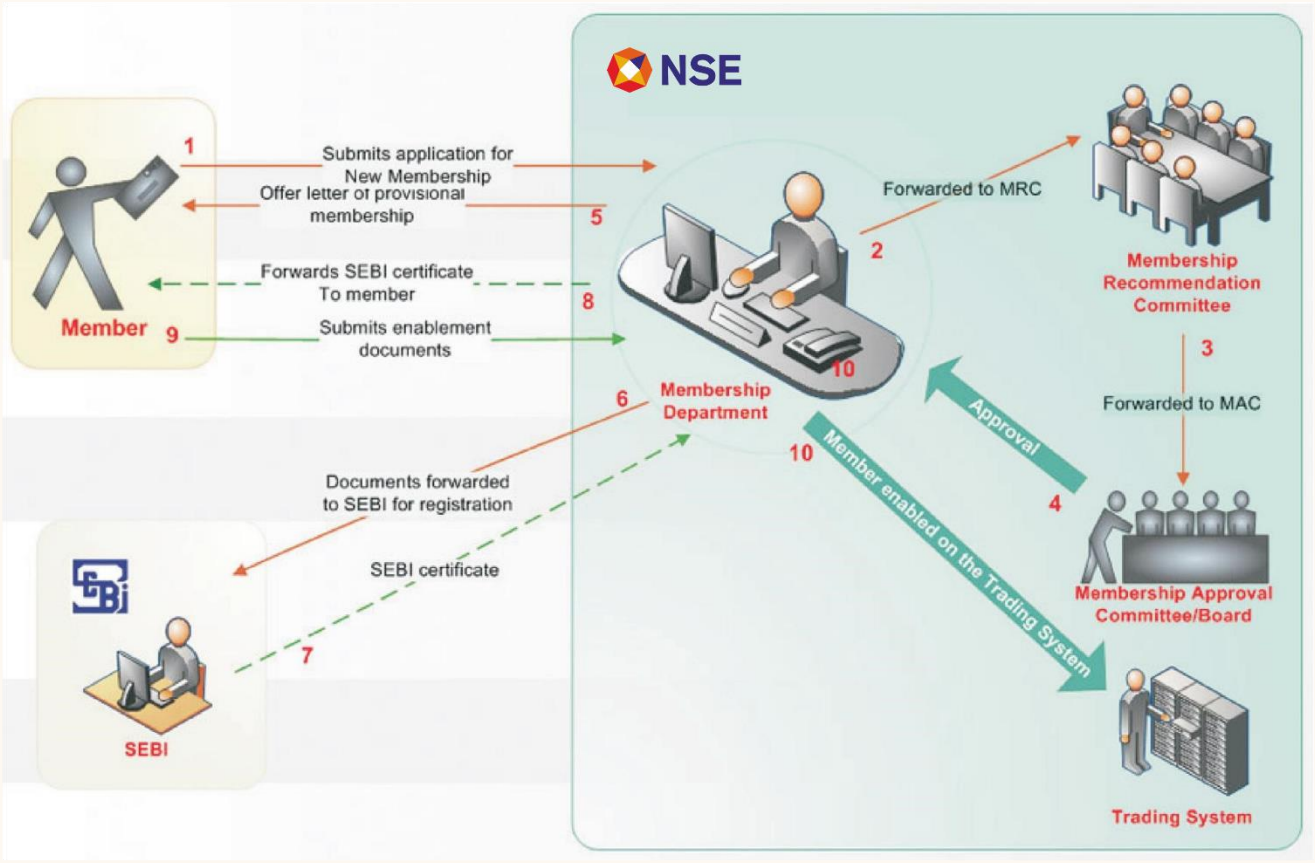


Figure: 1.7.1 Admission procedure for new membership at NSE

Admission is a two-stage process with applicants requiring to go through an examination (a module of NCFM) followed by an interview with the Membership Recommendation Committee. At any point of time the applicant has to ensure that at least the sole proprietor/ one of the designated partners/one of the designated director/compliance officers has a valid certificate of Securities Market (Basic) Module or Compliance Officers (Brokers) Module or the relevant module pertaining to the segments wherein membership of the Exchange has been sought. i.e.

(a) Capital Market (Dealers) Module
(b) Derivatives Market (Dealers) Module
(c) National Institute of Securities Markets (NISM) Series I – Currency Derivatives Certification Examination

The admission procedure for new membership depicted in figure 1.7.3 is explained below:

Applicants are required to submit application form, in the prescribed format along with other relevant documents to the Exchange.

The application for new membership is then forwarded to Membership Recommendation Committee. The Membership Recommendation Committee (MRC) consists Exchange officials. The MRC conducts interviews of the applicants for trading membership. In case of corporates, the dominant shareholder and designated directors; in case of individuals, the individual himself and in case of partnership firms – two designated

partners have to appear for the interview. The purpose of the interview is to acquire information about their capability & commitment to carry on stock broking activities, financial standing and integrity.

The MRC recommends the names for admission of trading members to the Membership Selection Committee (Sub-committee of board of directors)/Board of directors of the Exchange.

Membership Selection Committee (MSC) after taking into consideration the recommendations of the MRC either approves or rejects the applications.

On getting approval from MSC (NSEIL/NSCCL), an admission on a provisional basis is provided to the applicant subject to certain conditions like registration with SEBI, submission of relevant fees/ deposits and documents. The documents of the member are then forwarded to SEBI for registration.

After satisfying itself as to compliance with respect to all the prescribed norms, SEBI grants a Registration Certificate in the name of the applicant.

The applicant then has to remit the prescribed membership deposits (as required by the demand advice attached to the offer letter) within the time frame prescribed in the demand advice attached to the offer letter.

After obtaining SEBI Registration, the trading member has to satisfy the Exchange and NSCCL regarding all the formalities and requirements such as payment of fees/deposits and submission of relevant documents, for enablement. The dealers on CM segment are required to clear the Capital Market (Dealers) Module of NCFM; dealers on Futures & Options Segment are required to clear the Derivatives Market (Dealers) Module or equivalent examination of NCFM and dealers on Currency Derivatives segment are required to clear National Institute of Securities Market (NISM) Series I- Currency Derivatives Certification Examination. This is a pre-requisite without which user-ids are not issued.

After ensuring that all the formalities and requirements with regard to the Exchange and NSCCL are complied, the Trading Member is enabled to trade on the NEAT system.

1.8 What is meant by surrender of Trading Membership?

Trading members can apply for surrender of their trading membership once admitted to the Exchange. Surrender of trading membership can be permitted by the Exchange after fulfilling certain conditions by the member such as, clearing off all the dues to the Exchange and NSCCL, notifying all other TMs of the approval of surrender, ‘, issuance of a public notification in leading dailies, etc. The deposits of the trading members would be released by the Exchange/ NSCCL after a prescribed lock-in period. There is, however, no lock-in period applicable in case of trading member, who is,

(a) SEBI registered but not enabled

(b) SEBI registered and enabled but not traded at all Provided certain criteria are fulfilled

NSE provides a scheme for enabling the trading member to surrender their membership to the Exchange. Details of the norms and procedures related to the surrender of membership to the Exchange are prescribed as below:

(a) A trading member desirous of surrendering its membership of the Exchange is required to send its request in writing in the prescribed format.

(b) Before submission of an application for surrender of membership, the trading member is required to comply with all the pre-requisites for application of surrender in the prescribed format. The following aspects should be covered in the application for surrender of membership from a trading member,

(i) who has been suspended/ disciplinary action taken by the Exchange /SEBI

(ii) in respect of whom any investigation/ action consequent to a default has been initiated by the Exchange /SEBI,

(iii) who is falling within the category of 'associates' as defined by SEBI,

(iv) who owes dues to the Exchange/ NSCCL,

(v) against whom claims by investors of value of Rs.10 lakh or more are pending or any claim for any amount is pending for a period more than 6 months,

(vi) against whom any other claim /complaint is pending which, in the opinion of the Exchange/ NSCCL, needs to be resolved by the concerned trading member,

(vii) whose turnover fees liability to SEBI is still outstanding,

The Exchange has absolute discretion in dealing with such applications and if it decides to process/accept the surrender application of such trading member, it may impose additional terms and conditions as it may deem fit.

(c) No trading member, who has surrendered its trading membership, their partners (in case of partnership firm) and/ or dominant shareholders (in case of corporates) is eligible to be re-admitted to the trading membership of the Exchange in any form for a period of one year from the date of cessation of trading membership (i.e., from the date of approval of surrender).

(d) The application of surrender of trading membership is subject to fulfilment of certain conditions, such as submission of original SEBI registration certificate(s) on all segments on which the trading member is registered; submission of sub-broker registration certificate(s) of all the sub-brokers associated with the trading member for onward transmission to the SEBI for cancellation etc.

(e) The trading member should request the Exchange through their surrender application to dismantle and recover all the leased line(s)/ VSAT(s) and other equipment given to them at their dealing offices.

(f) A notice to public by way of a public notification in newspapers should be made by the Exchange and certain time (from the date of public notification) is given to investors, public, etc. to lodge claims against the surrendering trading member.

(g) A letter is also sent to SEBI seeking pending dues, if any, from member.

(h) On the expiry of period for receipt of investor claims and on receipt of intimation of dues amount, if any, from SEBI, the total amount payable by the member should be appropriated against trading member's deposits available with the Exchange / NSCCL and the trading member will be intimated accordingly. In case the amount payable exceeds the deposits, the trading Member would be intimated to bring in the requisite amount within 21 days of intimation. Upon the failure of the member to do so within 21 days of intimation, the case shall be referred to the relevant authority for further action.

1.9 What is suspension and expulsion of Membership?

The Exchange may expel or suspend, fine under censure, warn, withdraw any of the membership rights of a trading member if it is guilty of contravention, non-compliance, disobedience, disregard or evasion of any of the bye-laws, rules and regulations of the Exchange or of any resolutions, orders, notices, directions or decisions or rulings of the Exchange or the relevant authority.

1.9.1 What are the Basis of Suspension of Membership?

Following are some grounds on basis of which there can be suspension or expulsion of membership:

(i) **Misconduct**: A trading member is deemed guilty of misconduct for any of the following or similar acts or omissions namely:

(a) Fraud or fraudulent act or if he is convicted of a criminal offence.

(b) Violation of the provisions of any statute governing the activities, business and operations of the Exchange.

(c) Improper conduct.

(d) Failure to submit to or abide by arbitration.

(e) Failure to testify or give information sought by the Exchange or any committee or any other person authorized on that behalf.

(f) Failure to submit special returns in such form as the relevant authority may from time to time prescribe.

(g) Failure to submit audited accounts.

(h) Failure to compare or submit accounts with defaulter.

(i) Failure to submit or make any false or misleading returns.

(j) Make vexatious, malicious or frivolous complaints.

(k) Failure to pay subscription fee, arbitration charges etc.

(ii) **Un-business-like conduct:** A trading member is deemed guilty of un-business-like conduct for any of the following or similar acts or omissions namely:

(a) Transaction or business dealings in fictitious names.

(b) Circulation of rumours.

(c) Any unfair dealing in securities which does not reflect the true market values.

(d) Market manipulation and rigging.

(e) Unwarrantable business which effects purchases or sales for its account or any account related to the trading member.

(f) If a trading member accepts less than a full and bonafide money payment in settlement of a debt due by another trading member arising out of a transaction in securities.

(g) Dishonoured cheque.

(h) Failure to carry out transactions with constituents.

(iii) **Unprofessional conduct:** A trading member is deemed guilty of unprofessional conduct for any of the following or similar acts or omissions namely:

(a) Business in securities in which dealings not permitted

(b) Business for defaulting constituent who failed to carry out engagements relating to securities and is in default to another trading member

(c) Transacts in business with an insolvent without obtaining the consent of the relevant authority even if the individual has obtained his final discharge from an insolvency court

(d) Carrying out his business during his suspension period

(e) Business with suspended, expelled and defaulter trading members

(f) Business for employees of other trading members

(g) Business for Exchange employees if it makes a speculative transaction in which an employee of the Exchange is directly or indirectly interested

(h) If it advertises for business purposes or issue regularly circular or other business communications to persons other than its own constituents, trading members of the Exchange, banks and joint stock companies or publishes pamphlets, circular

(i) or any other literature or report or information relating to the stock markets with its name attached

(j) Evasion of margin requirements

(k) Evasion of brokerage charges

(l) Dealings with entities prohibited by SEBI to buy or sell or deal in securities market

(iv) **Trading member's responsibility for partners, agents and employees:** A trading member is fully responsible for the acts and omissions of its partners, authorised officials, attorneys, agents, authorised representatives and employees. If any such act which is against the relevant rules and regulations is committed or omitted by them then the trading member is liable to the same penalty to the same extent has that act or omission been done or omitted by itself.

(v) **Suspension on failure to provide margin deposit and/or capital adequacy requirements:** The Exchange can suspend the business of a trading member when it fails to provide the margin deposit and/or meets capital adequacy norms as provided in the Bye Laws, Rules and Regulations. The trading member shall remain suspended until he furnishes the necessary margin deposit or meet the capital adequacy requirements.

1.9.2 What is Suspension of Business?

The relevant authority may require a trading member to suspend its business in part or in whole under following conditions:

(a) **Prejudicial business:** When the relevant authority finds that the trading member conducts business in a manner prejudicial to the Exchange by making purchases or sales of securities or offers to purchase or sell securities for the purpose of upsetting equilibrium of the market or bringing about a condition of demoralisation in which prices will not fairly reflect market values, or

(b) **Unwarrantable business:** When in the opinion of the relevant authority the trading member engages in unwarrantable business or effects purchases or sales for its constituent's account or for any account in which it is directly or indirectly interested which purchases or sales are excessive in view of its constituent's or its own means and financial resources or in view of the market for such security, or

(c) **Unsatisfactory financial condition:** When the relevant authority finds that the trading member is in a bad financial condition and it cannot be permitted to do business with safety to its creditors or the Exchange.

1.9.3 What is Removal of Suspension?

The suspension of business as above shall continue until the trading member has been allowed by the relevant authority to resume business. It may be done on its paying such deposit or on its doing such act or providing such thing as the relevant authority may require.

1.9.4 What are the Consequences of Suspension?

The suspension of a trading member has the following consequences:

(a) **Suspension of membership rights:** The suspended trading member shall during the terms of its suspension be deprived of and excluded from all the rights and privileges of membership. It shall also include the right to attend or vote at any meeting of the general body of trading members of the relevant segment.

(b) **Rights of creditors unimpaired:** The suspension should not affect the rights of the trading members who are creditors of the suspended trading member.

(c) **Fulfilment of contracts:** The suspended trading members are bound to fulfil contracts outstanding at the time of its suspension.

(d) **Further business prohibited:** The suspended trading member should not during the terms of its suspension make any trade or transact any business with or through a trading member. With the permission of the relevant authority, however it can close the transactions outstanding at the time of its suspension.

(e) Trading members not to deal with suspended trading member: No trading member is allowed to transact in business with a suspended trading member during the terms of its suspension except with the prior permission of the relevant authority.

1.9.5 What are the Consequences of Expulsion?

The expulsion of a trading member has the following consequences:

(a) **Trading membership rights forfeited:** The expelled trading member shall forfeit to the Exchange its right of trading membership and all rights and privileges as a trading member of the Exchange including any right to the use of or any claim upon or any interest in any property or funds of the Exchange but any liability of any such trading member to the Exchange or to any trading member of the Exchange shall continue and remain unaffected by its expulsion.

(b) **Office vacated:** The expulsion would create a vacancy in any office or position held by the expelled trading member.

(c) **Rights of creditors unimpaired**: The expulsion does not affect the rights of the trading members who are creditors of the expelled trading member.

(d) **Fulfilment of contracts**: The expelled trading members are bound to fulfil transactions outstanding at the time of his expulsion and it may with the permission of the relevant authority close such outstanding transactions with or through a trading member.

(e) **Trading members not to deal with expelled trading member**: No trading member is allowed to transact business for or with or share brokerage with the expelled trading member except with the previous permission of the relevant authority.

(f) **Consequences of declaration of defaulter to follow**: The provisions of pertaining to default and Protection Fund mentioned in the byelaws become applicable to the trading member expelled from the Exchange as if such trading member has been declared a defaulter.

1.10 How Trading Member will be declared defaulter?

A trading member may be declared a defaulter by direction /circular/notification of the relevant authority of the trading segment if:

(a) he is unable to fulfil his obligations; or

(b) he admits or discloses his inability to fulfil or discharge his duties, obligations and liabilities; or

(c) he fails or is unable to pay within the specified time the damages and the money difference due on a closing-out effected against him under the bye laws, rules and regulations; or

(d) he fails to pay any sum due to the Exchange or to submit or deliver to the Exchange on the due date, delivery and receive orders, statement of differences and securities,

(e) balance sheet and such other clearing forms and other statements as the relevant authority may from time to time prescribe; or

(f) if he fails to pay or deliver to the defaulters' committee all monies, securities and other assets due to a trading member who has been declared a defaulter within such time of the declaration of default of such trading member as the relevant authority may direct; or

(g) if he fails to abide by the arbitration proceedings as laid down under the bye laws, rules and regulations.

(h) if he, being an individual and /or partnership firm, /it, being a company incorporated under the Companies Act, files a petition before a Court of Law for adjudication of himself as an insolvent or for its winding up, as the case maybe.

(i) (1A) Without prejudice to the foregoing, if a trading member is either expelled or declared a defaulter by any other recognised stock exchange on which he is a member or if the registration certificate is cancelled by SEBI, the said Trading Member may be expelled from the Exchange after providing an opportunity of being heard to such Trading Member.

(j) Notwithstanding anything contained in this Byelaw, the trading facility of the member shall be withdrawn immediately after the receipt of information of expulsion /default by any other stock exchange or cancellation of registration certificate by SEBI.

1.11 Who are Authorized Persons?

Trading members of the Exchange can appoint authorised persons in the Capital Market, Futures & Options and Currency Derivatives Segments. Authorised Person is "Any person- individual, partnership firm, Limited Liability Partnership (LLP) or body corporate who is appointed as such by a stock broker (including trading member) and who provides access to trading platform of a stock exchange as an agent of the stock broker." Authorised Person can receive remuneration - fees, charges, commission, salary, etc. for his services only from the stock broker and shall not charge any amount from the clients. Accordingly, stock broker can share brokerage with the Authorised Person but shall not charge any amount directly from the clients

The clients introduced by the authorised person should have a direct relationship with the trading member i.e. the member-constituent agreement, know your client forms, risk disclosure document, etc. are executed between the client and the trading member. This implies that the authorised person is not allowed to have any trading relationship with the clients. The trading member should issue the contract notes and bills directly to the client i.e., the authorized person should not issue contract notes, confirmation memo and/or bills in their name.

The clients introduced by the authorised person are required to deliver securities and make payments directly

in the trade name of the trading member (as appearing on the SEBI registration certificate). Similarly, the trading member should deliver securities and make payments directly in the name of the clients.

1.12 Who is Sub-broker?

Sub-broker is an important intermediary between stock broker and client in capital market segment. The trading members of the Exchange may appoint sub-brokers to act as agents of the concerned trading member for assisting the investors in buying, selling or dealing in securities. The sub-brokers are affiliated to the trading members and are required to be registered with SEBI. A sub-broker is allowed to be associated with only one trading member of the Exchange.

Trading members desirous of appointing sub-brokers are required to submit the following documents to the Membership Department of the Exchange:

(a) Copy of sub-broker - broker agreement duly certified by the trading members

(b) Application form for registration as a sub-broker with Securities and Exchange Board of India **(Form B)**

(c) Recommendation letter to be given by the trading member with whom the sub-broker is affiliated **(Form C)**

(d) Reference Letter from the applicant's Banker

(e) Reference letter from any other Third Party (Such as CA/CS/ Lawyer/Notary or other Stock Broker

(f) Declaration from Sub-Broker about Non-Conviction or presently not under trial for any offence (On the letterhead of the sub broker)

(g) Undertaking from Sub-Broker about Dealing directly with investors and not with any unregistered intermediary. (On the letterhead of the sub broker)

(h) Confirmation from sub-broker that he has not applied through any other TM & also he is not a member /Sub-broker of any of the Commodity Exchange (On the letterhead of the sub broker)

(i) Registered Partnership Deed and Registered partnership Certificate / MOA & AOA Along with the Certificate of Incorporation

(j) List of directors of sub broker as on specific date to be certified by CA/CS

The trading member has to ensure the settlement of all deals entered into by a trading member even if the deals may have originated from its sub-broker.

The sub-broker will be required to adhere to NSE's 'know your clients' requirements. The important documents relating to dealing through a sub-broker are given below:

1. Individual client registration application form
2. Non-individual client registration application form
3. Sub-broker client agreement

1.12.1 What is the Eligibility to be a Sub-Broker?

A sub-broker may be an individual, a partnership firm or a corporate. In case of corporate or partnership firm, the directors or partners and in the case of an individual sub-broker applicant should comply with the following requirements:

(a) They should not be less than 21 years of age;

(b) They should not have been convicted of any offence involving fraud or dishonesty;

(c) They should have either passed 12th standard equivalent examination from an institution recognized by the Government or 10th standard with 2 years of work experience in securities market.

(d) They should not have been debarred by SEBI

1.12.2 What is the Registration process for Sub-Broker?

No sub-broker is allowed to buy, sell or deal in securities, unless he or she holds a certificate of registration granted by SEBI. Sub-brokers are required to obtain certificate of registration from SEBI in accordance with SEBI (Stock Brokers & Sub-brokers) Rules and Regulations, 1992, without which they are not permitted to buy, sell or deal in securities. SEBI may grant a certificate to a sub-broker, subject to the conditions that:

(a) he should pay the fees in the prescribed manner;

(b) he should take adequate steps for redress of grievances of the investors within one month of the date of the receipt of the complaint and keep SEBI informed about the number, nature and other particulars of the complaints received;

(c) in case of any change in the status and constitution, the sub-broker should obtain prior permission of SEBI to continue to buy, sell or deal in securities in any stock exchange; and

(d) He should be authorised in writing, by a stock-broker being a member of a stock exchange for affiliating himself in buying, selling or dealing in securities.

The applicant sub-broker should submit the required documents to the stock exchange with the recommendation of a trading member. After verifying the documents, the stock exchange may forward the documents of the applicant sub-broker to SEBI for registration. A sub-broker can trade in that capacity after getting himself registered with SEBI. The Exchange may not forward the application of the sub-broker to SEBI for registration if the applicant dealt with fake, forged, stolen, counterfeit etc. shares and securities in the market.

1.12.3 What is process of Cancellation of Registration?

In case a trading member / sub-broker intend to cancel the registration as a sub-broker, the sub-broker is required to the following documents:

1. Request letter of the Trading member for surrender of sub-broker registration (on the letter head of TM);
2. Undertaking from the Trading Member (on the letter head of TM).
3. Application from Sub-Broker for surrender of registration (Annexure II), if the sub broker is traceable. If the sub broker is non-traceable than a copy of termination notice served to the sub broker along with the proof of delivery by the Trading Member.
4. Note: the difference between the proof of delivery of termination notice and the date of application to Exchange for surrender of sub-broker registration should be 30 days or more.
5. Copy of public notification intimating the investors/general public of the surrender of registration of sub broker and not to deal with such sub broker, issued in the local newspaper with wide circulation where

6. the sub broker's place of work is situated – (The content of the advertisement should be in English)
7. SEBI registration certificate of the Sub-Broker in original.
8. In case the original certificate is lost, FIR copy along with the affidavit must be submitted to SEBI in this regard by the concerned Trading Member and the Sub-Broker separately on stamp paper of Rs.100/- or of appropriate value as defined in the stamp act, duly notarized.
9. An undertaking from the member that SEBI has not taken/ initiated any action like enquiry proceedings / cancellation / suspension of registration / debarred / administrative warning or prohibited from dealing in securities market / imposed penalty after enquiry / Adjudication / prosecution etc. against the sub-broker
10. PAN card of the sub-broker truly certified by the trading member

1.13 How do you describe the Broker-Clients Relation?

1.13.1 What are the Client Registration Documents?

The trading member (TM) is required to enter into an agreement in the specified format provided by NSE with the client before accepting orders on latter's behalf. The agreement is executed on non-judicial stamp paper of adequate value, duly signed by both the parties on all the pages. Copy of the agreement has to be kept with the TM permanently. The agreement should contain all the clauses mentioned in Uniform Documentary Requirement (UDR). Stock broker may incorporate any additional clauses in these documents provided these are not in conflict with any of the clauses in the model document, and also the rules, regulations, articles, byelaws, circulars, directives and guidelines. There should be segregation of mandatory and voluntary documents/clauses pertaining to client registration in separate docket (compilation of documents). In case of internet trading, in addition to clauses mentioned in UDR, the client has to mention clauses pertaining to internet trading.

Under "Know Your Client (KYC)" requirements, the TM should seek information such as: investor risk profile, financial profile, investor identification details, address details, income, PAN number, employment, age, investments experience, trading preference. The TM has to obtain recent passport size photograph (photographs of partners/whole time directors, individual promoters holding 5% or more, either directly or indirectly, in the shareholding of the company and of persons authorized to deal in securities, and of each of their clients in case of individual clients). The TM should also take proof of identification and address of the client. In-person verification should be done by the trading member's staff, name & signature of the person doing the in-person verification together with the stamp of trading member should be there on the KYC form.

Under Member Constituent Agreement (MCA), trading members are required to make the constituent/clients aware of (a) trading segment to which TM is admitted, (b) particulars of SEBI registration number, (c) the precise nature of the trading member's liability for business to be conducted, (d) basic risks involved in trading on the Exchange (equity and other instruments) including any limitations on the liability and the capacity in which the trading member acts.

In order to assess the risk involved in trading, TM is required to issue Risk Disclosure Document (RDD)* in such format, as may be prescribed by the Exchange from time to time and should obtain the same from his constituents duly signed. ** The said documents are to be obtained as per Exchange circular NSE/INSP/5387 dt. 27-Aug-04*

A stock-broker should not deal knowingly, directly or indirectly, with a client who defaults to another stock-broker. There is no limit on the number of clients for a TM.

Copy of the client registration documents is required to be sent to the clients. Trading member must ensure periodic review of client's financial information & client database.

1.13.2 What is Unique Client Code (UCC)?

SEBI has made it mandatory for all trading members/brokers to use unique client codes for all clients. Brokers are required to collect and maintain the Permanent Account Number (PAN) allotted by Income Tax Department for all their clients.

Brokers should verify the documents with respect to the unique code and retain a copy of the document. They are also required to provide the PAN and UCC of their clients to the stock exchanges/clearing corporations and these details have to be updated before placing orders for the clients. The stock exchanges are also required to maintain a database of client details submitted by brokers.

1.13.3 What is Margins from the Clients?

Members should have a prudent system of risk management to protect themselves from client default. Margins are an important element of such a system. The policy of risk management addressing the margin requirements should be well documented and be made accessible to the clients and the stock exchanges. In capital market segment, however, the quantum of these margins, the form and the mode of collection are left to the discretion of the members*. The margin so collected is kept separately in the client bank account/client beneficiary account. In case of default, they are utilized for making payment to the clearing corporation for margin and settlement with respect to that client.

** SEBI/MRD/DoP/SE/Cir-07/2005 dated February 23, 2005*

1.13.4 What is Execution of Orders?

Where the constituent requires an order to be placed or any of his order to be modified after the order has entered the system but has not been traded, the trading member may, if it so desires, obtain order placement/modification details in writing from the constituent. The trading member should accordingly provide the constituent with the relevant order confirmation/ modification slip or copy thereof, forthwith, if so required by the constituent.

Where the constituent requires any of his orders to be cancelled after the order has been entered in the system but has not been executed, the trading member may, if it so desires, obtain the order cancellation details in writing from the constituent. The trading member should accordingly provide the constituent with the relevant order cancellation details, forthwith, if so required by the constituent. The trading member may, if it so desires, obtain in writing, the delivery and payment requirement in any instructions of an order that it receives from the constituent.

Where a trading member receives a request for order modification or order cancellation from the constituent, it should duly bring it to their notice that if the total order results in a trade in the meantime, the requests for modification or cancellation cannot be executed.

1.13.5 What is Contract Note?

Contract note is a confirmation of trade(s) done on a particular day for and on behalf of a client. A stock-broker should issue a contract note to his clients for trades (purchase/sale of securities). The contract note should contain name and address (registered office address as well as dealing office address) of the TM, the SEBI registration number of the TM, details of trade viz. order number, trade number, order time, trade time, security name, quantity, trade price, brokerage, settlement number and details of other levies.

As per Regulation 18 of SEBI (Stock-Brokers & Sub-Brokers) Regulations, 1992, the TM should preserve the duplicate copy of the contract notes issued for a minimum of five years. The TM should ensure that:

(a) Contract Note is issued to a client within 24 hours and should be signed by the trading member or by an authorized signatory trading member.
(b) Contract Notes are in the prescribed format*
(c) Stamp duty is paid
(d) All statutory levies are shown separately in the Contract Note

**As per circular NSE/LEGL/7036 dated January 05, 2006 in Cash Market segment*

1.13.6 What is duration for Payments/Delivery of Securities to the Clients?

Every TM should make payments to his clients or deliver the securities purchased within one working day of pay-out unless the client has requested otherwise.

1.13.7 What is Brokerage?

The maximum brokerage chargeable by TM in respect of trades affected in the securities admitted to dealing on the CM segment of the Exchange is fixed **at 2.5% of the contract price**, exclusive of statutory levies. This maximum brokerage is inclusive of sub-brokerage. The brokerage should be indicated separately from the price, in the contract note. The TM may not share brokerage with a person who is a TM or in employment of another TM.

For example: If a client has sold 10000 shares of a scrip @ Rs. 50, what is the maximum brokerage that the client can be charged?

In this case, the maximum brokerage = Brokerage rate*value of the transaction
= 2.5 %* (10,000 shares * Rs. 50) = Rs. 12,500

1.13.8 Why is a separate Bank Account needed for Clients and Brokers?

The TM should maintain separate bank accounts for client's funds and own funds. It is compulsory for all TMs to keep the money of the clients in a separate account and their own money in a separate account. Funds should be transferred from the client account to the clearing account for the purpose of funds pay-in obligations on behalf of the clients and vice- versa in case of funds pay-out. No payment for transaction in which the TM is taking position as a principal is allowed to be made from the client's account.

1.13.9 What is Segregation of Demat (Beneficiary) Accounts?

The trading members should keep the dematerialised securities of constituents in a separate beneficiary account distinct from the beneficiary account maintained for holding their own dematerialised securities. No delivery towards the own transactions of the trading members is allowed to be made from the account meant for constituents. For this purpose, every trading member is required to open a beneficiary account in the name of the trading member exclusively for the securities of the constituents (to be referred to as "constituents' beneficiary account"). A trading member may keep one consolidated constituents' beneficiary account for all its constituents or different accounts for each of its constituents as it may deem fit.

1.14 What is the nature of Sub-broker-Client Relationships?

1.14.1 What are the characteristics of the agreement?

A sub-broker is required to enter into a tripartite agreement with its clients and the stock broker specifying the scope of rights and obligations of the sub-broker, the stock broker and such client of the sub-broker as per the format prescribed by SEBI for dealing in securities in cash segment. There should be privacy of contract between the stock broker and the sub- broker's client. A separate agreement has to be executed for each Exchange.

Sub-broker is required to help the client in redress of grievance in respect of transactions executed through its associated broker. Sub-broker is also required to assist and co-operate in ensuring faster settlement of any arbitration proceeding arising out of the transaction entered through its associated broker and is jointly/severally liable to implement the arbitration award.

A sub-broker should provide assistance to stock broker and clients to reconcile their accounts at the end of each quarter with reference to all the settlements where payouts have been declared during the quarter.

1.14.2 What are Contract notes?

A stock broker should issue contract note as per the format prescribed by the Exchange to client introduced through a sub-broker. A sub-broker should render necessary assistance to its client in obtaining the contract note from the stock broker. Sub-broker should not issue any contract note or confirmation memo to its client.

1.14.3 What are Securities/ Funds?

Transactions in securities executed on behalf of a client introduced through the sub-broker should be settled by delivery/ payment between the stock broker and the client directly, in accordance of the rules, regulations and byelaws of the Exchange and such settlements should not take place through sub-broker. Delivery of securities and payment of funds relating to the transactions of a client introduced by the sub-broker should be directly between the stock broker and the client of the sub broker.

1.15 What is the role of the Investor Service Cell?

Investor complaints received against the trading members / companies in respect of claims/ disputes for transactions executed on the Exchange are handled by the Investor Service Cell (ISC). The complaints are forwarded to the trading members for resolution and seeking clarifications. The ISC follows-up with the trading members and makes efforts to resolve the complaint expeditiously. In certain cases, on account of conflicting claims made by the investor and the trading member, when it is not possible to administratively

resolve the complaint, investors are advised to take recourse to the arbitration mechanism prescribed by the Exchange.

Arbitration, which is a quasi-judicial process, is an alternate dispute resolution mechanism prescribed under the Arbitration and Conciliation Act, 1996. The Exchange bye-laws prescribe the provisions in respect of arbitration and the procedure therein has been prescribed in the regulations. The reference to arbitration should be filed within six months from the date when the dispute arose. The time taken by the ISC is excluded by the arbitrator, while considering the issue of limitation.

1.16 What are the features of the Code of Advertising?

Trading Members of the Exchange while issuing advertisements in the media have to comply with the Code of Advertisement prescribed by the Exchange. In pursuance of that, a copy of an advertisement has to be submitted to the Exchange to get a prior approval before its issue in publication/media. The trading members may apply for approval of advertisement as per the application format. Trading Members not complying with the Code of Advertisement may have to face disciplinary proceedings.

The Code of Advertisement is as follows:

1. Advertisement shall include all forms of communications issued by or on behalf of Stock Broker in publicly available media that may influence investment/sale decisions of any investor/prospective investors.

2. Forms of communications shall include, form of document, pamphlets, circulars, brochures, notice or any research reports or any other literature or information, material published, or designed for use in a newspaper, magazine, SMS or other periodical, radio, television, telephone or tape recording, video tape display, signs or bill boards, motion pictures, telephone directories (other than routine listings) or other public media including websites or emails, whether in print or audio visual form or used in workshop/seminar or public speaking or in any other manner.

3. **Advertisement/Material shall contain:**

   3.1 Name of the Stock Broker, registered office address of the member, SEBI Registration No (all registration numbers and names of the Exchanges in case of multiple memberships) / Stock Broker ID allotted by Exchange and logo of the Stock Broker, if any.

   3.2 Information which is accurate, true, fair, clear, complete, unambiguous and concise.

   3.3 Standard warning in legible fonts (minimum 10 font size) which states **'investments in securities market are subject to market risks, read all the related documents carefully before investing.'** No addition or deletion of words shall be made to the standard warning. In audio-visual media-based advertisements, the standard warning in visual and accompanying voice over reiteration shall be audible in a clear and understandable manner. For example, in standard warning both the visual and the voice over reiteration containing 17 words running for at least 5 seconds may be considered as clear and understandable.

   3.4 In case the mode of advertisement is SMS/Message/Pop-up, etc. and the details such as full name, logo, full registered office address, SEBI registration numbers and standard disclaimer are not mentioned, then official website hyperlink has to be provided in such SMS/Message/Pop-up, etc. and the website must contain all such details.

3.5 If there is mentioning of content pertaining to any other business activity such as Mutual Funds, IPO, Insurance, Commodities, Bonds, Fixed Deposits, Loans, etc., in the advertisement, then respective registration number(s) where applicable should be mentioned.

3.6 If the member is only a distributor/s for any of the products mentioned in the advertisement, disclaimer that they are only distributor/s of such products should be specifically mentioned in the disclaimer.

3.7 In case any specific security/securities are displayed in the advertisement as examples, disclaimer that "The securities quoted are exemplary and are not recommendatory" should be mentioned.

3.8 If the advertisement contains prepaid Brokerage schemes, Exchange circular (ref. no. NSE/INSP/26252 dated March 24, 2014) regarding pre-paid schemes should be complied with. In case anything related to the brokerage rates offered by the member is mentioned in the advertisement, then a disclaimer stating that the "Brokerage will not exceed the SEBI prescribed limit" should be mentioned.

4. **Advertisement/Material shall NOT contain:**

4.1 Anything which is otherwise prohibited for publication under the relevant Act, unwarranted, or make any promises.

4.2 Statements which are false, misleading, biased or deceptive, based on assumptions projections.

4.3 Shall not contain any misleading or deceptive testimonials.

4.4 Statements which directly or by implication or by omission may mislead the investor.

4.5 Any statement designed as likely to be misunderstood or likely to disguise the significance of the statement.

4.6 Any statement designed to exploit the lack of experience or knowledge of the investors.

4.7 Any slogan that is exaggerated or unwarranted or slogan that is inconsistent with or unrelated to the nature and risk and return profile of the product.

4.8 Any promise or guarantee of assured return to the general investors.

4.9 Any statement which directly or indirectly discredits other advertisements or Stock Broker or make unfair comparisons.

4.10 Representations made about the performance or activities of the broker unless accompanied by data regarding performance, disclosures of all the risk factors, etc. and disclaimer that "Such representations are not indicative of future results". Such disclaimer shall be in the same font as the rest of the advertisement.

4.11 Superlative terms, such as best, no. 1, one of the best, among market leaders, etc. unless such terms is provided by an entity independent of the Stock Broker and its affiliates, and whose services are not procured by the Stock Broker or any of its affiliates to assign the Stock Broker such term.

4.12 Recommendations such as BTST (buy today and sell tomorrow), ATST (acquire today and sell tomorrow) etc. cannot be mentioned in the advertisement as per Exchange circular ref. no. NSE/COMP/13186 dated October 05, 2009.

5. **Compliance and other requirements**

5.1 Prior approval for the advertisement/material to be obtained from the Stock Exchange before issue.

5.2 No celebrities shall form part of the advertisement/material.

5.3 Statistical information, charts, graphs, etc. when used should be supported by their source, if any

5.4 Where advertising claims are expressly stated to be based on or supported by independent research or assessment, the source and date of this should be indicated in the advertisement.

5.5 In the event of suspension of any Stock Broker by the Exchange, the Stock Broker so suspended shall not issue any advertisement either singly or jointly with any other Stock Broker, during the period of suspension.

5.6 In the event of any proceeding/action initiated against a Stock Broker by a regulatory body other than the Exchange, the Exchange reserves the right to direct the Stock Broker to refrain from issuing any advertisement for such a period as it may deem fit.

5.7 The Stock Broker shall not involve/engage in games/leagues/schemes/competitions etc. which may involve distribution of prize monies/medals/gifts, etc.

5.8 These norms shall be applicable to any other investment/consultancy agencies associated with the Stock Broker concerned and issuing advertisement wherein the Stock Broker has been named in the advertisement.

5.9 Copy of the advertisement shall be submitted to the Exchange at least seven days in advance before its issue.

5.10 Further to Exchange circular ref. no. NSE/COMP/30985 dated October 21, 2015 wherein members were instructed to submit an undertaking along with every advertisement submitted for approval, the updated undertaking format in compliance with the revised Code of Advertisement for Stock Brokers is provided at Annexure II circular ref. no. NSE/COMP/33643 dated 16 November 2016.

Key Words

Primary Markets, Secondary Markets, Market Capitalization, Turnover, Stock Brokers, NSE, Brokerage, Demat Accounts, Contract Notes, Securities Funds

Questions for Practice

1) The ..... refers to the market where securities are traded after being offered to the public in the primary market?
   a) Primary Market
   b) Secondary Market
   c) Both a & b
   d) None of the above

2) ..... is used as a measure of trading activity or liquidity in the stock markets?
   a) Market Capitalisation
   b) Market Capitalisation Ratio
   c) Turnover
   d) Turnover Ratio

3) Which of these is/are a Market Participant(s)?
   a) Investors
   b) Issuers
   c) Intermediaries
   d) All of the above

4) SEBI grants a certificate to a stock broker subject to the conditions that the stock broker
   a) Should pay the amount of fees for registration in the prescribed manner
   b) holds the membership of any stock exchange
   c) Both a & b
   d) None of the above

5) While considering the application of an entity for the grant of registration as a stock broker, SEBI checks out if the applicant?
   a) has any past experience in the business of buying, selling or dealing in securities
   b) is eligible to be admitted as a member of a stock exchange;
   c) has the necessary infrastructure like adequate office space, equipment and manpower to effectively discharge his activities;
   d) All of the above

6) The trading members of NSE have certain benefits, which include(s) .....?
   a) Ability to provide a fair, efficient and transparent securities market to the investors
   b) Access to a nation-wide trading facility for equities, derivatives, debt and hybrid instruments / products
   c) Use of state-of-the-art electronic trading systems and technology
   d) All of the above

7) NSE provides a scheme for enabling the trading member to surrender their membership to the Exchange?
   a) The trading member should request the Exchange through their surrender application to dismantle and recover all the leased line(s)/ VSAT(s) and other equipment given to them at their dealing offices
   b) to dismantle and recover all the leased line(s)/ VSAT(s) and other equipment given to them at their dealing offices
   c) A trading member desirous of surrendering its membership of the Exchange is required to send its request in writing in the prescribed format
   d) All of the above

8) Which of the following grounds are on basis of which there can be suspension or expulsion of trading membership?
   a) Misconduct
   b) Un-business-like conduct
   c) Unprofessional conduct Funds
   d) All of the above

9) The expulsion of a trading member has which of the following consequences?
   a) Trading membership rights forfeited
   b) Rights of creditors unimpaired
   c) Fulfilment of contracts
   d) All of the above

10) ..... is an important intermediary between stock broker and client in capital market segment.
   a) Dealer
   b) Sub Broker
   c) Exchange
   d) None of the above

Chapter 2: Trading

In this Chapter, you will learn:

- Trading, its network, its hierarchy and its advantages
- Neat System and Market types
- Order Management
- Internet Broking
- Wireless Application Protocol (WAP)
- Stock Split, Stock Consolidation, Bonus Issues, Buy Back of Shares
- SEBI SCORES

2.1 How Trading developed over the years?

In the past, the trading on stock exchanges in India was based on **open outcry system**. Under the system, brokers assemble at a central location usually the exchange trading ring, and trade with each other. This was time consuming, inefficient and imposed limits on trading volumes and trading hours. In order to provide efficiency, liquidity and transparency, NSE introduced a **nation-wide on-line, fully-automated screen based trading system (SBTS)**. Under this system a trading member can punch into the computer, the number of securities and the prices at which he would like to transact. The transaction is executed as soon as it finds a matching sell or buys order from a counter party. See Box no. 2.1.1 for advantages of SBTS. This system was readily accepted by market participants and in the very first year of its operation, NSE became the leading stock exchange in the country.

Technology has been used to carry the trading platform from the trading hall of stock exchanges to the premises of brokers. NSE carried the trading platform further to the PCs at the residence of investors through the Internet. This made a huge difference in terms of equal access to investors in a geographically vast country like India.

The trading network is depicted in Figure 2.1. NSE has a main computer which is connected through **Very Small Aperture Terminal (VSAT)** installed at NSE office. The main computer runs on a fault tolerant STRATUS mainframe computer at the Exchange. Brokers have terminals (identified as the PCs in the Figure 2.1) installed at their premises which are connected through VSATs/leased lines/modems.

2.1.1: Advantages of the Screen-Based Trading System (SBTS)

- It electronically matches orders on a strict price/time priority and hence cuts down on time, cost and risk of error, as well as on fraud resulting in improved operational efficiency.
- It allows faster incorporation of price sensitive information into prevailing prices, thus increasing the informational efficiency of markets.
- It enables market participants, irrespective of their geographical locations, to trade with one another simultaneously, improving the depth and liquidity of the market.
- It provides full anonymity by accepting orders, big or small, from members without revealing their identity, thus providing equal access to everybody.
- It also provides a perfect audit trail, which helps to resolve disputes by logging in the trade execution process in entirety.

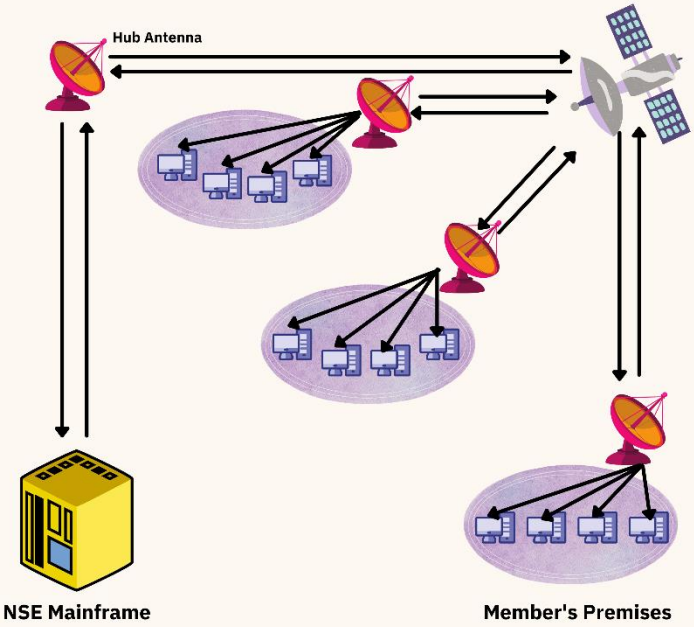


Figure 2.1: Trading Network

An investor informs a broker to place an order on his behalf. The broker enters the order through his personal computer and sends signal to the Satellite via VSAT/leased line/modem. The signal is directed to a mainframe computer at NSE via VSAT at NSE's office. A message relating to the order activity is broadcast to the respective member. The order confirmation message is immediately displayed on the PC of the broker. This order matches with the existing passive order(s), otherwise it waits for the active orders to enter the system. On order matching, a message is broadcast to the respective member.

The trading system operates on a strict price time priority. All orders received on the system are sorted with the best priced order getting the first priority for matching i.e., the best buy orders match with the best sell order. Similar priced orders are sorted on time priority basis, i.e., the one that came in early gets priority over the later one. Orders are matched automatically by the computer keeping the system transparent, objective and fair. Where an order does not find a match, it remains in the system and is displayed to the whole market, till a fresh order comes in or the earlier order is cancelled or modified. The trading system provides tremendous flexibility to the users in terms of kinds of orders that can be placed on the system. Several time-related (immediate or cancel), price-related (buy/sell limit and stop loss orders) or volume related (disclosed quantity) conditions can be easily built into an order. The trading system also provides complete market information on-line. The market screen at any point of time provides complete information on total order depth in a security, the five best buys and sells available in the market, the quantity traded during the day in that security, the high and the low, the last traded price, etc. Investors can also know the fate of the orders almost as soon as they are placed with the trading members. Thus, the National Exchange for Automated Trading (NEAT) system provides an Open Electronic Consolidated Limit Order Book (OECLOB).

Limit orders are orders to buy or sell shares at a stated quantity and price. If the price- quantity conditions do not match, the limit order will not be executed. The term 'limit order book' refers to the fact that only limit

orders are stored in the book and all market orders are crossed against the limit orders sitting in the book. Since the order book is visible to all market participants, it is termed as an 'Open Book'.

2.2 What is NEAT and its features?

NSE is the first exchange in the world to use satellite communication technology for trading. Its trading system, called National Exchange for Automated Trading (NEAT), is a state of-the- art client server-based application. At the server end all trading information is stored in an in-memory database to achieve minimum response time and maximum system availability for users. It has uptime record of 99.7%. For all trades entered into NEAT system, there is uniform response time of less than one second. The NEAT system supports an order driven market, wherein orders match on the basis of time and price priority. All quantity fields are in units and prices are quoted in Indian Rupees. The regular lot size and tick size for various securities traded is notified by the Exchange from time to time.

2.3 What are the types of market?

Normal Market

All orders which are of regular lot size or multiples thereof are traded in the Normal Market. For shares that are traded in the compulsory dematerialised mode the market lot of these shares is one. Normal market consists of various book types wherein orders are segregated as Regular lot orders, Special Term orders, and Negotiated Trade Orders and Stop Loss orders depending on their order attributes.

Odd Lot Market

All orders whose order size is less than the regular lot size are traded in the odd-lot market. An order is called an odd lot order if the order size is less than regular lot size. These orders do not have any special terms attributes attached to them. In an odd-lot market, both the price and quantity of both the orders (buy and sell) should exactly match for the trade to take place. Currently the odd lot market facility is used for the Limited Physical Market as per the SEBI directives.

Auction Market

In the Auction Market, auctions are initiated by the Exchange on behalf of trading members for settlement related reasons. There are 3 participants in this market.

- **Initiator** – the party who initiates the auction process is called an initiator
- **Competitor** – the party who enters orders on the same side as of the initiator
- **Solicitor** – the party who enters orders on the opposite side as of the initiator

2.4 What are the Trading System Users' Hierarchy?

The trading member has the facility of defining a hierarchy amongst its users of the NEAT system. This hierarchy is depicted in Figure 2.2.

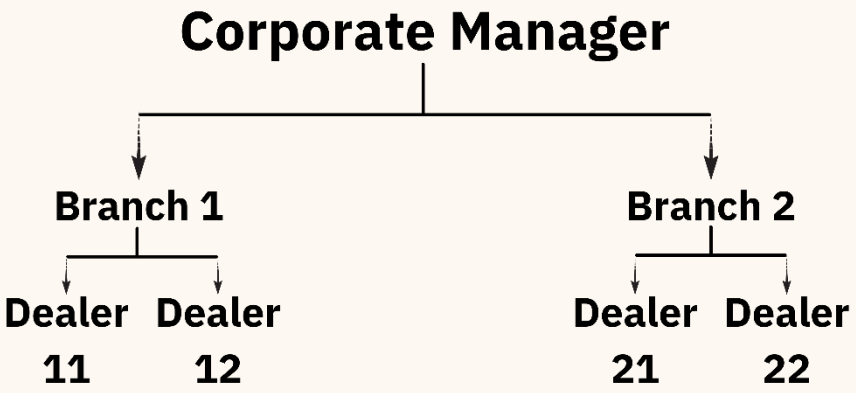


Figure 2.2: Trading System Users' Hierarchy

The users of the trading system can logon as either of the user type. The significance of each type is explained below:

(i) **Corporate Manager**: The corporate manager is a term assigned to a user placed at the highest level in a trading firm. Such a user receives the end-of-day reports for all branches of the trading member. The facility to set branch order value limits and user order value limits is available to the corporate manager. He can view outstanding orders and trades of all users of the trading member and can also cancel/modify outstanding orders of all users of the trading member.

(ii) **Branch Manager**: The branch manager is a term assigned to a user who is placed under the corporate manager. The branch manager receives end-of-day reports for all the dealers under that branch. He can set user order value limit for each of his branch. He can view outstanding orders and trades of all users of his branch and can also cancel/ modify outstanding order of all users of his branch.

(iii) **Dealer**: Dealers are users at the lowest level of the hierarchy. A dealer can view and perform order and trade related activities only for himself and do not have access to information on other dealers under either the same branch or other branches.

2.5 What are the uses of a local database?

The local database provides a faster response time to the users. All inquiries made by a user for own orders/trades are serviced through the local database. If however, a corporate manager or branch manager makes inquiries for orders of any dealer/branch manager of the trading firm, then the inquiry is serviced by the host. The data stored in the local database include system messages, security related information and order/trade related data of the user.

2.6 What are the uses of a local database?

The trading system is normally made available for trading on all days except Saturdays, Sundays and other holidays. Holidays are declared by the Exchange from time to time. A trading day typically consists of a number of discrete stages as below:

(i) **Opening**: The trading member can carry out the following activities after login to the NEAT system and before the market opens for trading:

(a) Set up Market Watch (the securities which the user would like to view on the screen)

(ii) **Pre-open:** The pre-open session is for a duration of 15 minutes i.e., from 9:00 am to 9:15 am. The pre-open session is comprised of Order collection period and order matching period.

The order collection period of 8* minutes shall be provided for order entry, modification and cancellation.

**System driven random closure between 7th and 8th minute*

The information like Indicative equilibrium / opening price of scrip, total buy and sell quantity of the scrip is disseminated on the NEAT Terminal to the members on real time basis.

Indicative NIFTY 50 Index value & % change of indicative equilibrium price to previous close price are computed based on the orders in order book and are disseminated during pre-open session.

Order matching period starts immediately after completion of order collection period. Orders are matched at a single (equilibrium) price which will be open price. The order matching happens in the following sequence:

- Eligible limit orders are matched with eligible limit orders
- Residual eligible limit orders are matched with market orders
- Market orders are matched with market orders

Equilibrium price determination

In a call auction price mechanism, equilibrium price is determined as shown below. Assume that NSE received bids for particular stock xyz at different prices in between 9.00 am & 9:07/08 am. Based on the principle of demand supply mechanism, exchange will arrive at the equilibrium price - price at which the maximum number of shares can be bought / sold. In below example, the opening price will be 105 where maximum 27,500 shares can be traded.

Share Price	Order Book		Demand/Supply schedule		Maximum tradable
	Buy	Sell	Demand	Supply	Quantity
100	13500	11500	50500	11500	11500
104	9500	9500	37000	21300	21300
105	12000	15000	27500	36300	27500
106	6500	12000	15500	48300	15500
107	5000	12500	9000	60800	9000
108	4000	8500	4000	69300	4000

During order matching period, order modification, order cancellation, trade modification and trade cancellation is not allowed. The trade confirmations are disseminated to respective members on their trading terminals before the start of normal market. After completion of order matching there is a silent period to facilitate the transition from pre-open session to the normal market. All outstanding orders are moved to the normal market retaining the original time stamp. Limit orders are at limit price and market

orders are at the discovered equilibrium price. In a situation where no equilibrium price is discovered in the pre-open session, all market orders are moved to normal market at previous day's close price or adjusted close price / base price following price time priority. Accordingly, Normal Market and Odd lot Market opens for trading after closure of pre-open session i.e., 9:15 am. Block Trading session is available for the next 35 minutes from the open of Normal Market.

The opening price is determined based on the principle of demand supply mechanism. The equilibrium price is the price at which the maximum volume is executable. In case more than one price meets the said criteria, the equilibrium price is the price at which there is minimum unmatched order quantity. In case more than one price has same minimum order unmatched quantity, the equilibrium price is the price closest to the previous day's closing price. In case the previous day's closing price is the mid-value of pair of prices which are closest to it, then the previous day's closing price itself will be taken as the equilibrium price. In case of corporate action, previous day's closing price is adjusted to the closing price or the base price. Both limit and market orders are reckoned for computation of equilibrium price. The equilibrium price determined in pre-open session is considered as open price for the day. In case if only market orders exist both in the buy and sell side, then order is matched at previous days close price or adjusted close price / base price. Previous day's close or adjusted close price / base price is the opening price. In case if no price is discovered in pre-open session, the price of first trade in the normal market is the open price.

(iii) **Normal Market Open Phase:** The open period indicates the commencement of trading activity. To signify the start of trading, a message is sent to all the trader workstations. The market open time for different markets is notified by the Exchange to all the trading members. Order entry is allowed when all the securities have been opened. During this phase, orders are matched on a continuous basis. Trading in all the instruments is allowed unless they are specifically prohibited by the Exchange. The activities that are allowed at this stage are Inquiry, Order Entry, Order Modification, Order Cancellation (including quick order cancellation), Order Matching and Trade Cancellation.

(iv) **Market Close**: When the market closes, trading in all instruments for that market comes to an end. A message to this effect is sent to all trading members. No further orders are accepted, but the user is permitted to perform activities like inquiries and trade cancellation.

(v) **Post-Close Market**: This closing session is available only in Normal Market Segment. Its timings are from 3.40 PM to 4.00 PM. Only market price orders are allowed. Special Terms, Stop Loss and Disclosed Quantity Orders, Index Orders are not allowed. The trades are considered as Normal Market trades. Securities not traded in the normal market session are not allowed to participate in the Closing Session.

(vi) **SURCON:** Surveillance and Control (SURCON) is that period after market close during which, the users have inquiry access only. After the end of SURCON period, the system processes the data for making the system available for the next trading day. When the system starts processing data, the interactive connection with the NEAT system is lost and the message to that effect is displayed at the trader workstation.

2.7 What is the process of logging on?

On starting NEAT application, the logon screen appears with the following detail:

- User ID
- Trading Member ID
- Password

In order to sign on to the system, the user must specify a valid User ID, Trading Member ID and the corresponding password. A valid combination of User ID, Trading Member ID and the Password is needed to access the system. Figure 2.3 shows screenshot of log on screen of NEAT CM.

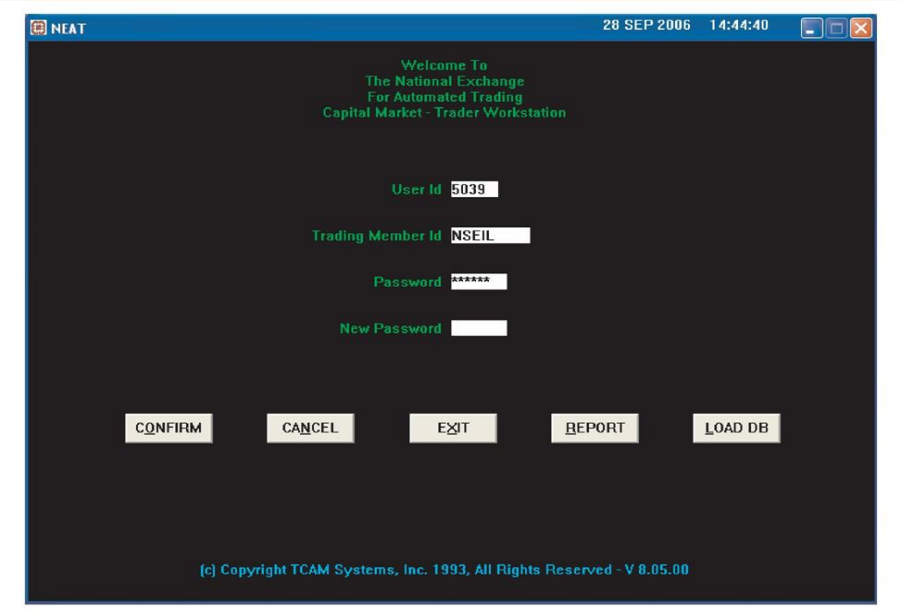


Figure 2.3: Logon Screen of NEAT CM

Following are the details of the log-on screen:

(i) **User ID**: Each trading member can have more than one user ID. The number of users allowed for each trading member is notified by the Exchange from time to time. Each user of a trading member must be registered with the Exchange and is assigned a unique user ID.

(ii) **Trading Member ID**: The Exchange assigns a trading member ID to each trading member. The trading member ID is unique and functions as a reference for all orders/ trades of different users. This ID is common for all the users of a particular trading member. The trading member ID and user IDs form a unique and valid combination.

It is the responsibility of the trading member to maintain adequate control over the persons having access to user IDs. The trading member should request the Exchange for changes in names of the users of user ID, especially when there are changes in the users who are dealing on behalf of the trading member.

(iii) **Password:** When a user logs in for the first time, he has to enter the default password 'Neat@CM1' provided by the exchange. On entering this password, the system requests the user to enter a new password in the `New Password' field. On entering the new password, the system requests for confirmation of this new password. This new password is known to the user only.

2.7.1: Features of User ID and Password

Location Specific User ID: Earlier, it was possible for the members having connectivity at more than one location to use the allotted user IDs interchangeably from either location. This gave rise to various systems security related problems. To reduce such potential risks associated with the member's workstation, the exchange assigns user ID to a specific location. So, whenever a user attempts to log on to the trader workstation, the system checks for a valid location for that user ID in the database at the host end.

Password:

- The password should contain minimum of six characters and maximum of eight characters in length. A combination of characters and numbers is allowed in the password.
- The password can be changed if the user desires so and a new password can be entered. The new password must be different from the old password.
- Password appears in the encrypted form and thus complete secrecy is maintained. The system ensures the change in password for all users (password expiry period is parameterized by the exchange).
- In the event of the user forgetting his password, the trading member is required to reset the password from his corporate manager user id. In case the corporate manager id is disabled then he is required to inform the exchange in writing, requesting to reset the password. The user password is reset to the default password set by the exchange. The user can login by entering a new password as per the procedure outlined above.

When a user tries to login with a wrong password a message 'Invalid Sign on' is displayed. If three attempts are made by a user to log on with an incorrect password, then that user is automatically disabled. In case of such an event, the trading member is required to reset the password from his corporate manager user id. In case the corporate manager id is disabled then he is required to makes a written request to the exchange for resetting of password. The user password is reset to the default password set by the exchange. The user can login by entering a new password as per the procedure outlined.

2.8 What is the process of logging off/exit from the application?

One can exit from the application as and when one desires before the SURCON period. On invoking the log off screen, the following options are displayed to the user. Figure 3.4 shows screenshot of log off screen of NEAT CM.

(i) **Permanent Sign Off**: As the name suggests, a user can log off permanently from the trading system by selecting this option. The user is logged off and the log on screen appears.

(ii) **Temporary Sign Off**: Temporary sign off is a useful feature that allows the user to disallow the use of the trading software without actually logging off. During a temporary sign-off period, the application continues to receive all market updates in the background. The user, however, cannot enter orders or make inquiries. This allows the user to leave the trading system temporarily inactive and prevents unauthorized access to the system. On selecting the temporary sign off option, a password entry screen is displayed. The use of the NEAT system is enabled on entering the correct password. The temporary sign off is automatically activated when the user is inactive for a period of 5 minutes. The user has to enter the password to resume activities. If five attempts are made to sign on with an incorrect password, the user is permanently logged off. In this case the user has to log on again.

(iii) **Exit**: On selection of this option, the user comes out of sign off screen.

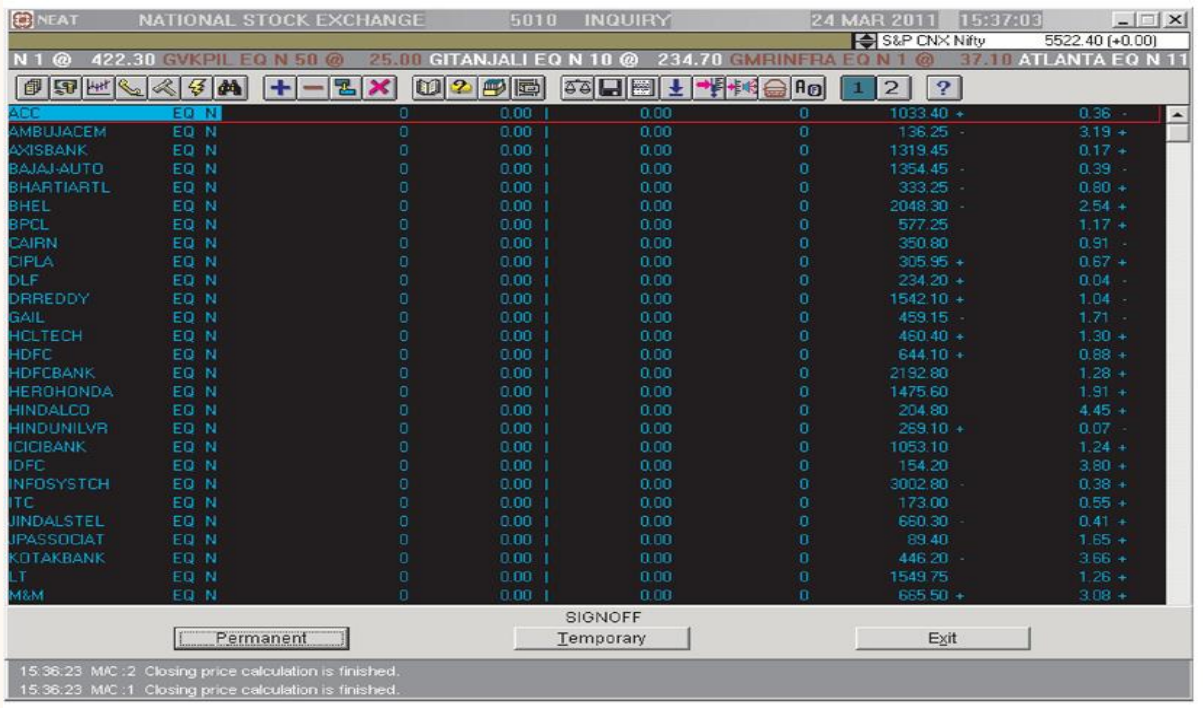


Figure 2.4 Logoff screen of NEAT CM

2.9 What is a NEAT Screen?

The trader workstation screen of the trading member is divided into the following windows:

(i) **Title bar**: It displays trading system name i.e., NEAT, the trading member name the user id, user type, the date and the current time.

(ii) **Ticker Window**: The ticker displays information of all trades in the system as and when it takes place. The user has the option of selecting the securities that should appear in the ticker. Securities in ticker can be selected for each market type. On the extreme right hand of the ticker is the on-line index window that displays the current index value of NSE indices namely Nifty 50, Nifty50 PR 1x Inverse, Nifty100 Liquid 15, Nifty Services Sector, Nifty Midcap 50, Nifty Dividend Opportunities 50, Nifty Free Float Smallcap 100, Nifty PSE, Nifty MNC, Nifty Infrastructure, Nifty FMCG, Nifty Energy, Nifty Bank, Nifty 100, Nifty50 TR 1x Inverse, Nifty 11-15 yr G-Sec Index, Nifty 200, India VIX, Nifty 15 yr and above G-Sec Index, Nifty Auto, Nifty Media, Nifty Quality 30, Nifty PSU Bank, Nifty Metal, Nifty 500, Nifty IT, Nifty Commodities, Nifty CPSE, Nifty Financial Services, Nifty Pharma, Nifty Midcap Liquid 15, Nifty Free Float Midcap 100, Nifty50 PR 2x Leverage, Nifty Next 50, Nifty India Consumption, Nifty Growth Sectors 15, Nifty 4-8 yr G-Sec Index, Nifty 10 yr Benchmark G-Sec (Clean Price) Index, Nifty Composite G-Sec Index, Nifty50 TR 2x Leverage, Nifty50 Value 20, Nifty Realty, Nifty 8-13 yr G-Sec Index, Nifty 10 yr Benchmark G-Sec Index, Nifty50 Dividend Points and Nifty Private Bank. The user can scroll within these indices and view the index values respectively. Index point change with reference to the previous close is displayed along with the current index value. The difference between the previous close index value and the current index value becomes zero when the Nifty closing index is computed for the day.

The ticker window displays securities capital market segments. The ticker selection facility is confined to the securities of capital market segment only. The first ticker window, by default,

displays all the derivatives contracts traded in the Futures and Options segment.

(iii) **Tool Bar:** The toolbar has functional buttons which can be used with the mouse for quick access to various functions such as Buy Order Entry, Sell Order Entry, Market By Price (MBP), Previous Trades (PT), Outstanding Order (OO), Activity Log (AL), Order Status (OS), Market Watch (MW), Snap Quote (SQ), Market Movement (MM), Market Inquiry (MI), Auction Inquiry (AI), Order Modification (OM), Order Cancellation (OCXL), Security List, Net Position, Online Backup, Supplementary Menu, Index Inquiry, Index Broadcast and Help. All these functions are also accessible through the keyboard.

(iv) **Market Watch Window**: The 'Market Watch' window is the main area of focus for a trading member. This screen allows continuous monitoring of the securities that are of specific interest to the user. It displays trading information for the selected securities.

(v) **Inquiry Window**: This screen enables the user to view information such as Market by Order (MBO), Market By Price (MBP), Previous Trades (PT), Outstanding Orders (OO), Activity Log (AL), Order Status (OS), Market Movement (MM), Market Inquiry (MI), Net Position, Online Backup, Index Inquiry, Indices Broadcast, Most Active Securities and so on. Relevant information for the selected security can be viewed.

(vi) **Snap Quote**: The snap quote feature allows a trading member to get instantaneous market information on any desired security. This is normally used for securities that are not already set in the Market Watch window. The information presented is the same as that of the Marker Watch window.

(vii) **Order/Trade Window**: This window enables the user to enter/modify/cancel orders and to send request for trade cancellation and modification.

(viii) **Message Window**: This enables the user to view messages broadcast by the exchange such as corporate actions, any market news, auctions related information etc. and other messages like order confirmation, order modification, order cancellation, orders which have resulted in quantity freezes/price freezes and the exchange action on them, trade confirmation, trade cancellation/modification requests and exchange action on them, name and time when the user logs in/logs off from the system, messages specific to the trading member, etc. These messages appear as and when the event takes place in a chronological order.

2.10 How to invoke an Inquiry Screen?

All Inquiry screens have a selection where the security viewed can be selected. The screen shows the details of the security selected for that inquiry. The details for each inquiry screen are discussed below:

2.10.1 What is Market Watch?

The Market Watch window is the third window from the top of the screen that is always visible to the user. The Market Watch is the focal area for users. The purpose of Market Watch is to setup and view trading details of securities that are of interest to users. For each security in the Market Watch, market information is dynamically updated. Following are the key features of Market Watch Screen:

(i) **Market Information Displayed**: The one-line market information displayed in the market watch screen is for current best price orders available in the Regular Lot book. For each security the following information is displayed:

(a) the corporate action indicator "Ex/Cum"

(b) the total buy order quantity available at best buy price

(c) best buy price

(d) best sell price
(e) total sell order quantity available at best sell price
(f) the last traded price
(g) the last trade price change indicator and
(i) the Percentage change from previous day's closing price'

If the security is suspended, 'SUSPENDED' appears in front of the security. If a question mark (?) appears on the extreme right-hand corner for a security, it indicates that the information being displayed is not the latest and the system will dynamically update it.

(ii) **Information Update:** In the Market Watch screen, changes in the best price and quantities are highlighted on a dynamic basis (in all pages of Market Watch). For example, if the best price changes as a result of a new order in the market, the new details are immediately displayed. The changed details are highlighted with a change of colour for a few seconds to signify that a change has occurred. The blue colour indicates that price/quantities have increased, while the red colour indicates that the price/quantities have decreased.

If the last traded price is higher than the previous last traded price then the indicator '+' appears or if the last traded price is lower than the previous last traded price then the indicator '-' appears. If there is no change in the last traded price, no indicator is displayed.

The list of securities that are available for trading on Capital Market segment is available in the Security List box. The user has the option to setup securities directly from the Security List without typing a single character on the market watch screen. This is a quick facility to setup securities. If the user tries to setup a security which is already present in the market watch one gets a message that the security is already setup. The user also has the option to add and delete the security set up in the market watch screen as many times as one desires. The user can print the contents of the Market Watch setup by the user. The user can either print the Market Watch on display or the Full Market Watch.

(iii) **Market Watch Download:** A user has to set up securities after the first download of the software. After setting up the market watch, it is suggested that the user should log out normally. This will help the user to save the freshly set up market watch securities in a file. If at any given time, when the user has freshly set up a few securities and encounters an abnormal exit, the newly set up securities are not saved and the user may have to repeat the process of setting up securities. The Market Watch setup is carried over to subsequent days, thus averting the need to set up the Market Watch on daily basis. During the logon stage, the relevant Market Watch details are downloaded from the trading system. The message displayed is 'Market Watch download is in progress'. The time taken for the Market Watch download depends on the number of securities set up.

(iv) **Setting up Securities**: One of the best features of this software is that the user has the facility to set up 500 securities in the market watch. The user can view up to 30 securities in one page of the market watch screen.

(v) **Easy Navigation**: The details of the current position in the Market Watch defaults in the order entry screen and the inquiry selection screen. It is therefore possible to do quick order entries and inquiries

using this feature. The default details can also be overwritten.

(vi) **Corporate Actions Indication**: An indicator for corporate actions for a security is another feature in market watch. The indicators are as follows:

'XD' - ex-dividend
'XB' - ex-bonus
'XI' - ex-interest
'XR' - ex-rights
'CD' - cum-dividend
'CR' - cum-rights
'CB' - cum-bonus
'CI' - cum-interest
'C*' - in case of more than one of CD, CR, CB, CI
'X*' - in case of more than one of XD, XR, XB, XI

2.10.2 What is Security Descriptor?

Information such as Security Name, Book Closure Start and End Dates, Ex-Date, No-Delivery Start and End Dates, Tick Size, daily price range, Face Value, ISIN and Remarks is displayed in the Security Descriptor. The label DPR i.e., Daily Price Range displays the permissible price band for a security for the current trading day. Figure 2.5 shows screenshot of security descriptor window in NEAT CM.

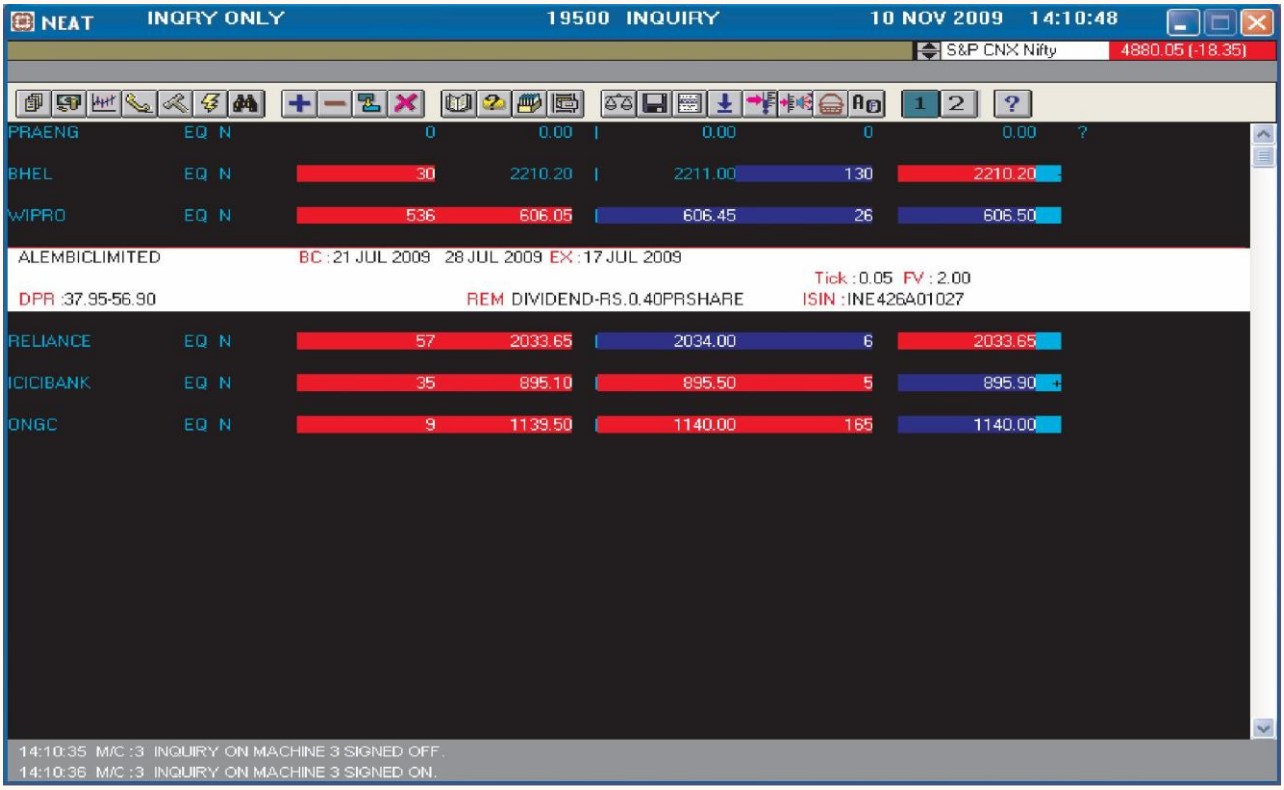


Figure 2.5: Security Descriptor in NEAT CM

2.10.3 What is Market by Price?

The purpose of Market by Price (MBP) is to enable the user to view outstanding orders in the market aggregated at each price and are displayed in order of best prices. Figure 2.6 shows screenshot of market by price window in NEAT CM.

The fields that are available on the selection screen are Symbol, Series and Book Type. The option available in the book type field are Regular Lot.

The detailed MBP screen is split into First Line, Detail Line and Summary Line. The first line displays Market Type, Symbol, Series, Total Traded Quantity, Highest Trade Price, Lowest Trade Price, Last Trade Price, % Change in LTP from Previous Day Close and Average Traded Price. The detail line displays Number of Buy Orders, Total Buy Order Quantity at that price, Buy Order Price, Sell Order Price, Total Sell Order Quantity at that price and Number of Sell Orders. The summary line displays Total Buy Order Quantity and Total Sell Order Quantity. For special term orders, the terms are not reflected in the MBP screen. Buy orders are displayed on the left side of the window and sell orders on the right. The orders appear in a price/time priority with the "best priced" order at the top. When any Regular Lot information, currently displayed on the window, is changed (for example as the result of a trade), this information is automatically reflected in the MBP i.e., dynamic updating of MBP screen is present.

All buyback orders are identified by an '*' in the MBP screen. In case a buyback order appears in the best five orders in the MBP an '*' will precede such an order record. In addition, an '*' will appear against the 'Total Buy' field in the MBP irrespective of the order being in best five orders in the MBP or not.

Special Features of MBP

(a) Regular lot & special term orders can be viewed in the MBP. The percentage change for last trade price with respect to previous day's closing price, open price (in case of pre- open indicative opening price), high price for a day, low price a day and the average trade price of the security in the given market are the additional fields in the screen.

(b) No untriggered stop-loss order will be displayed on the MBP screen.

(c) Only order details for the best 5 prices information are displayed.

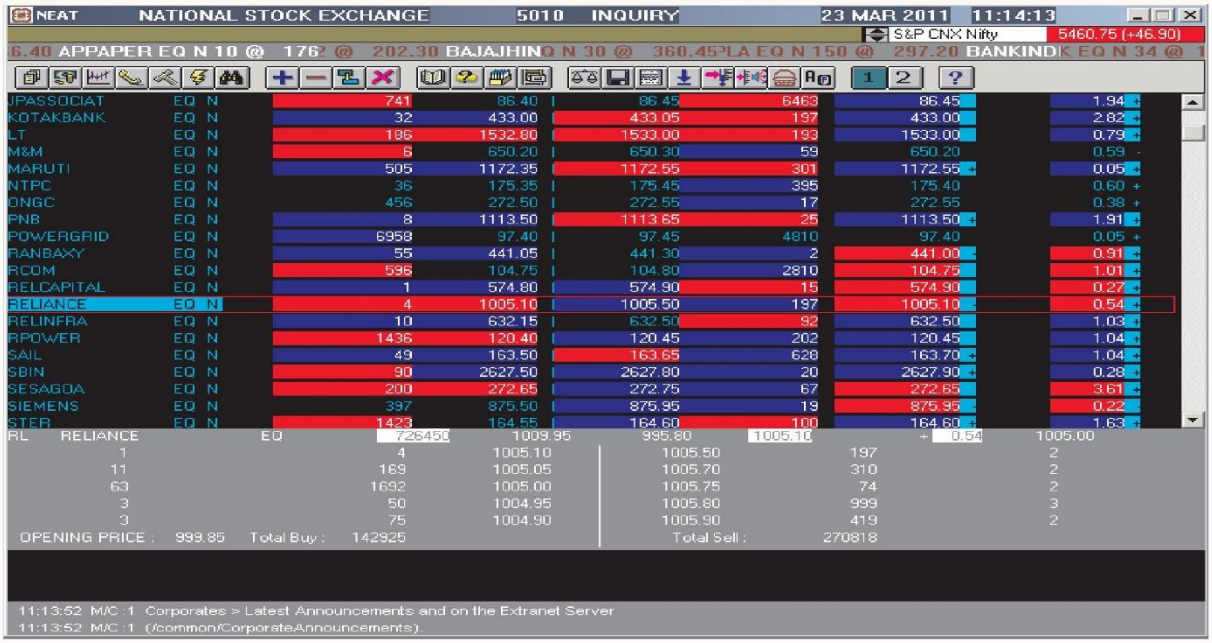


Figure 2.6: Market by Price Window in NEAT CM

2.10.4 What are Previous Trades?

The purpose of the Previous Trades window is to provide security-wise information to users for own trades. The fields that are available on the selection screen are Symbol, Series, Market type, Auction Number, Trading Member ID, Branch ID, Dealer, CLI, Buy/Sell and Time. The options available in the Market type field are Normal Market, Odd Lot and Auction. If the user selects the option to view Auction Market trade details, the auction number has to be compulsorily entered. The Corporate Manager can view all the trades for all branches or for a specific branch. Under the specific branch, the user can view trade details for a specific dealer or for all dealers. The Branch Manager can view all details under that branch i.e. all previous trades for all dealers and for all clients or for all dealers or for a specific dealer. The dealer can view previous trades for own user id only. The user can select the previous trades up to a particular time period, by entering the relevant time in the time field.

The detailed Previous Trade screen information is split into First Line, Detail Line and Summary Line. The first line displays Market Type, Symbol, Series, Last Trade Price, Last Trade Quantity, Last Trade Time and Total Traded Quantity. The detail line contains Buy/Sell Indicator, PRO/CLI indicator (where P – PRO and C - CLI), Order Number, Trade Number, Trade Quantity, Trade Price and Trade Time. The summary line contains Total Number of Buy Trades, Total Buy Quantity Traded, Total Buy Traded Value, Average Buy Traded Price, Total Number of Sell Trades, Total Sell Quantity Traded, Total Sell Traded Value and Average Sell Traded Price. Previous Trade Screen displays the client account number also. Preopen Indicator is displayed as “P” for all Preopen Trades.

Trades are displayed in a reverse chronological order. First all buy trades are displayed and then sell trades are displayed. A facility is provided to users to view their trades for BUY side or SELL side or ALL by selecting the BUY/SELL/ALL filter in primary window. By default, the filter is on ALL. Once the query is executed with the filter, the trades are displayed with time sorting for the chosen filter option. This functionality only works for self and not for hierarchal inquiry.

What are the Special Features of Previous Trades?

(a) Trade cancellation can be requested from the Previous Trade screen. This facility is available only for member’s own trades. The Corporate Manager can request for trade cancellation for any branch or any dealer. The Branch Manager can request for trade cancellation for any dealer under that branch. The dealer can request for trade cancellation only for trades under that user id.

(b) The user can request the Exchange to modify only the client code field. Currently trade modification facility is not enabled on trading system.

2.10.5 What are Outstanding Orders?

The purpose of Outstanding Orders is to enable the user to view the outstanding orders for a security. An outstanding order is an order that has been entered by the user, but which has not yet been completely traded or cancelled. The user is permitted to see his orders.

The fields which are available on the selection screen are Symbol, Series, Book type, Auction Number, Branch ID, Dealer, PRO/CLI and Time. The options available in the Book type field are Preopen, Regular Lot, Odd Lot, Stop Loss and Auction. If the user selects the option to view Auction Market trade details, the

Auction Number has to be compulsorily entered. When the user selects Preopen book, in the detailed screen only preopen outstanding orders will be displayed. In the detailed screen, pre-open orders will have an Identifier 'P'. The corporate manager can view all the Outstanding Orders for all branches or for a specific branch. Under the specific branch, the user can view Outstanding Orders details for a specific dealer or for all dealers. Similarly, it is possible to view all Outstanding Orders for a particular client or for all clients under a dealer. The Branch Manager can view all Outstanding Orders details under that Branch i.e., all Outstanding Orders for all dealers and for all clients or for all dealers or for a specific dealer. The dealer can view Outstanding Orders for own user id only.

The detailed outstanding orders screen is split into First Line and Detail Line. The first line contains Symbol, Series, Market Type, Security Status, Label, Current Time and Current Date. The detail line contains Book Type, User ID, Client A/C Number, Order Number, Order Quantity Pending and Order Price.

The orders are listed on the basis of price/time priority. The orders are displayed in order of Regular Lot orders and then Stop Loss orders. Outstanding order screen is not dynamically updated, but the user has option to refresh the Outstanding Orders screen by revoking the inquiry.

Special Features of Outstanding Orders

(a) The user can modify orders from the outstanding orders screen.
(b) The user can cancel orders from the outstanding orders screen.
(c) The user can view status of a particular order from the outstanding orders screen.

2.10.6 What is Activity Log?

The Activity Log (AL) shows all the activities that have been performed on any order belonging to that user. These activities include order modification/cancellation, partial/full trade, and trade modification / cancellation. It displays information of only those orders in which some activity has taken place. It does not display those orders on which no activity has taken place.

The fields that are available on the selection screen are Symbol, Series, Market Type, Branch ID, Dealer, PRO/CLI and Client Account Number. The Symbol, Series and Market Type fields are compulsory. The options available in the Market Type field are Preopen, Normal Market, Odd Lot and Auction. A Preopen Identifier 'P' will be displayed for Preopen orders in Activity Log screen.

The detailed AL screen is split into first line and detail line. The first line displays Market Type, Symbol, Series, Current Time and Current Date. The detail line contains User Id, Order Number, PRO/CLI indicator (where P-PRO, C-CLI), Buy/Sell Indicator, Order quantity, Order price, Order Terms/Trade Number, Disclosed Quantity, MF Indicator, MF Quantity, Activity Indicator and Activity Time. One line appears for each activity that has taken place today. For example, if a buy order is traded against three separate sell orders, then the activity log for the buy order shows three separate lines and the original order details. The following activities are displayed:

B For buy orders, this indicates a match.
S For sell orders, this indicates a match.
OC This indicates an order was cancelled.
OM This indicates an order was modified. The details displayed are the order after it was modified.
TC For both buy and sell orders this indicates that a trade involving this order was cancelled.
TM For both buy and sell orders this indicates that a trade involving this order was modified.
Special terms associated with the order are displayed to help identify the order.

Special Features of Activity Log

(a) The AL gives details of all activities in chronological orders.
(b) Within the order number, the details appear with the oldest activity first and the latest last.
(c) The activity consists only of orders entered by the requesting trading member.
(d) This inquiry option is not available to users in inquiry mode.

2.10.7 What is Order Status?

The purpose of the Order Status (OS) is to look into the status of one of dealer's own specific orders. The screen provides the current status of orders and other order details. The order status screen is not dynamically updated. In case the order is traded, the trade details are also displayed. In case of multiple trades, the display is scrolled.

- To view the status of a particular order, enter the order number for which the order status is to be viewed in the selection screen of OS. The user has to enter the second part of the order number. If the user does not know the order number, then the user can position the highlight bar on the desired order on the Outstanding Order screen and then invoke the OS screen. The order number is directly defaulted in the Order Status selection screen. Additionally, if it is a preopen order then there will be an identifier 'P' with tool tip as "Preopen Identifier" indicating that it is a Preopen order.

The detailed OS screen is divided into three parts. The first part covers order related information, the second part covers the trade related information if the order has resulted in a trade and the third part gives summary details.

The first part details are in two lines. The first line gives Book Type, Symbol, Series, Order Number, Type (Buy/Sell), Total Order Quantity, Order Price, PRO/CLI, Client A/C Number and Participant ID. The second line gives Disclosed Quantity, MF/AON Indicator, MF Quantity, Trigger Price, Day, Indicator 1 (Order Modified - MOD), Indicator 2 (Order Cancelled - CXL) and Indicator 3 (Order Traded - TRD). The second part details are Trade Quantity, Trade Price, Trade Time and Trade Number. The third part details are Quantity Traded Today and Balance Quantity (remaining quantity).

Special Features of Order Status

(a) The OS provides the user the current status of the order i.e., whether order has been modified, order was cancelled, order was traded, or order has been partially traded.
(b) It shows all the order details. It also shows the trade details for each trade done against this order.

(c) The data is presented in chronological order. One line appears for each activity that has taken place today.
(d) The dealer can view order status of orders entered under that Dealer ID only.
(e) This Inquiry option is not available to Users in Inquiry mode.

2.10.8 What is Snap Quote?

The Snap Quote is a feature available in the system to get instantaneous market information on a desired security. This is normally used for a security that is not setup in the Market Watch window. The information displayed for the set-up security is same as that in Market Watch window i.e., corporate action indicator 'Ex/Cum', the total buy order quantity, best buy price, best sell price, total sell order quantity, last traded price, last trade price change indicator and the no delivery indicator 'ND'. The Snap Quote is displayed for the time specified by the exchange from time to time. The display position of Snap Quote is reserved and no other information overlaps it. A user can therefore simultaneously view a regular inquiry (e.g., MBP) and the Snap Quote display.

2.10.9 What does the market movement screen show?

The purpose of the Market Movement screen is to provide information to the user regarding the movement of a security for the current day. This inquiry gives the snap shot for a particular security for a time interval as parameterised by the exchange. The fields that are available on the selection screen are Symbol, Series and Market type. The user can select the Market Type as Normal Market and Odd Lot market. Figure 3.7 shows screenshot of market movement window in NEAT CM.

The detailed output screen is given in two parts. The first part gives information regarding the security for the entire day namely Symbol, Series, Market Type, Total Buy Order Quantity, Total Sell Order Quantity, Total Traded Quantity, High Price, Low Price, Open Price and Last Traded Price. The second part gives information for a particular time interval namely Time Interval, Buy Order Quantity, Sell Order Quantity, Traded Quantity, High Price and Low Price. The user can save the Market Movement screen by specifying the directory and file name to save the information. This file can be viewed in MSDOS editor.

Special Features of Market Movement

(a) The Market Movement screen provides information to the user regarding the movement of a security for the current day on orders/trades done today.
(b) The information displayed is from the time the market was opened today and in chronological sequence.

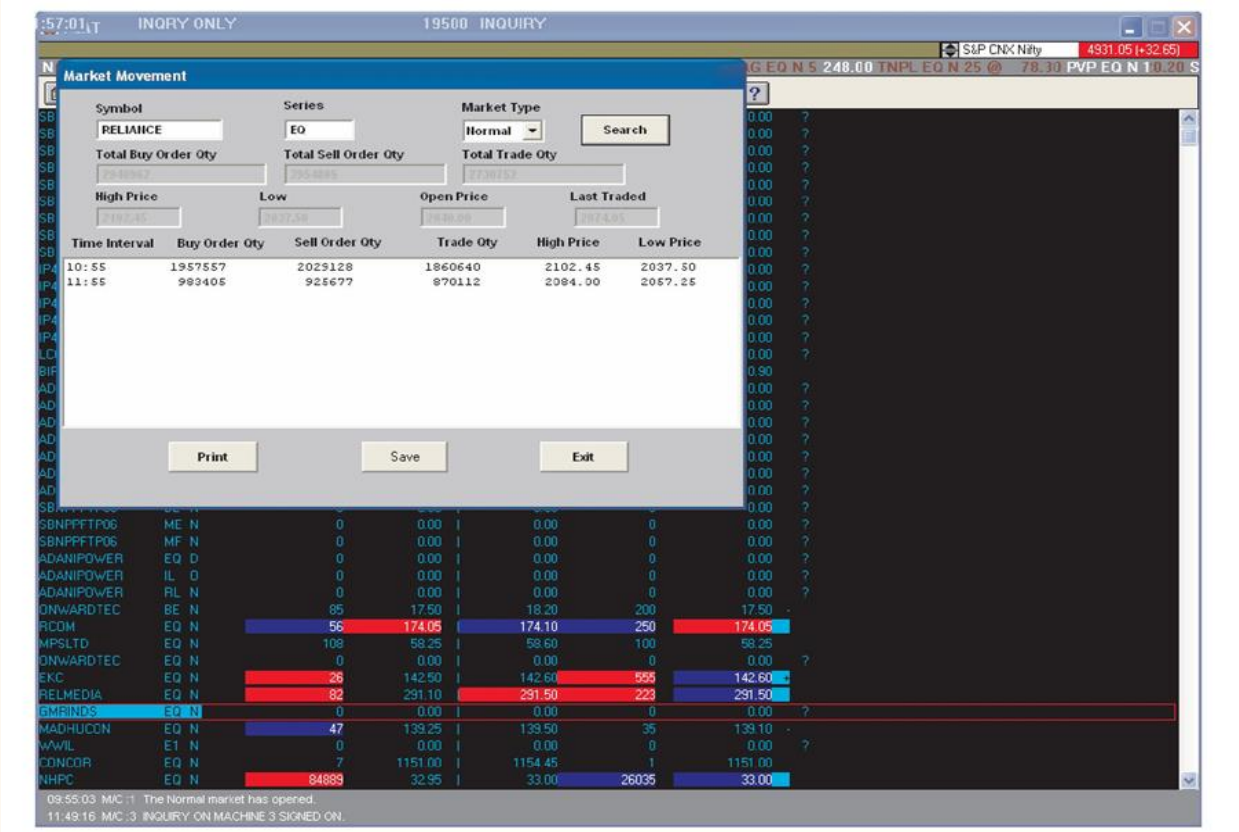


Figure 2.7: Market Movement Window in NEAT CM

2.10.10 what is Market Inquiry Screen?

The purpose of the Market Inquiry is to enable the user to view the market statistics, for a particular market, for a security. It also displays the open price and previous close price for a security.

The fields that are available on the selection screen are Symbol, Series and Market type. The user can select market type as Normal and Odd Lot. The detailed output screen is given in two parts. The first line displays Symbol, Series, Security Status, Corporate Actions Indicator 1, Corporate Actions Indicator 2, Corporate Actions Indicator 3, Total Traded Quantity, 52 Week High and 52 Week Low. The second line displays Closing Price, Opening Price, High Price, Low Price, Last Traded Price and Net change from closing price. The third line displays Last Traded Quantity, Last Traded Time and Last Traded Date. The fourth line displays Best Buy Order Quantity, Best Buy Order Price, Best Sell Order Price and Best Sell Order Quantity.

Special Features of Market Inquiry

(a) This screen is not dynamically updated. It displays the security status of the security selected. 'S' indicates that the security is suspended, 'P' indicates that the security is in preopen (only for normal market) and in absence of the above indicators the security is open for trading.

(b) An indicator for corporate actions for a security is displayed on the screen. The indicators are as follows:
"CD" = cum-dividend
"XD" = ex-dividend
"CR" = cum-rights
"XR" = ex-rights

"CB" = cum-bonus
"XB" = ex-bonus
"CI" = cum-interest
"XI" = ex-interest

(c) The net change indicator for last trade price with respect to the previous day's closing price and the net change percentage for the last trade price with respect to the previous day's closing price are displayed.

(d) The base price of a security for the day is equal to the previous day's closing price of the security in normal circumstances. Thus, in the market inquiry screen the field indicating the closing price also gives the base price for the day.

(e) If the base price is manually changed (due to a corporate action) then the market inquiry will not display the new base price in the closing price field.

2.10.11 what is Auction Inquiry Screen?

The purpose of Auction Inquiry (AI) is to enable the users to view the auction activities for the current trading day. This window displays information about auctions currently going on and auctions that have been completed.

The detailed line in the auction inquiry screen displays: No. - Serial Number, St. - Status of the auction security, Type - Buy/Sell auction, Symbol, Series, Best Buy Qty, Best Buy Price, Best Sell Price, Best Sell Qty, Auction Qty, Auction Price and Settlement Period.

The following are the different status displayed for an auction security:

S Auction is in Solicitor Period
M System is matching the orders
F Auction is over
X Auction is deleted
P Auction is pending and yet to begin

The user can view the auction details of a security setup in the market watch, by invoking the auction inquiry screen after highlighting the auction security. To view the auction details for all the securities, the user should blank out the contents of all the fields in the auction inquiry selection screen. To view the auctions after a particular number, the user should blank out the contents in Symbol & Series field and enter the number in the auction number field on the selection screen. The auction inquiry screen then displays all auctions from that number onwards. This window is dynamically updated. Figure 2.8 shows screenshot of auction enquiry Screen window in NEAT CM.

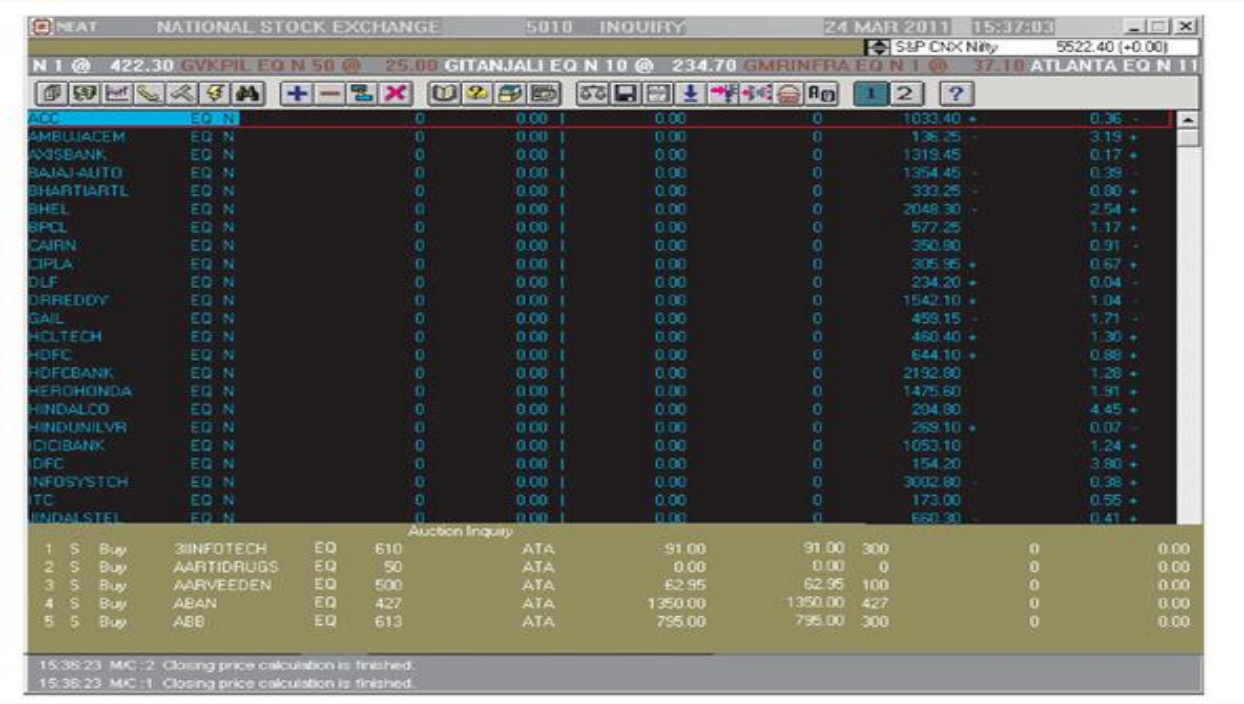


Figure 2.8: Auction Inquiry window in NEAT CM

2.10.12 What is Security/Portfolio List?

This is a facility for the user for setting up the securities in the market watch screen. This screen also has a new facility of allowing the user to setup his own portfolio. Figure 3.9 shows screenshot of security descriptor window in NEAT CM.

(i) **Security List:** The user can select securities based on Symbol, Series, Instrument Type and Market Type. A blank/partial search for Symbol and Series is also possible. The Symbol, Series, Market Type and Security Name are displayed based on the selection criteria. The user can also print the selected securities.

(ii) **Portfolio List:** Once the security is selected, the same can be used for setting up a portfolio. The user can give a name to the list so selected. The existing portfolio can be modified and/or removed. The user can also set-up a particular portfolio in market watch. Portfolio created can be used for basket order entry also. Order files can be generated based on the portfolio created using basket trading option.

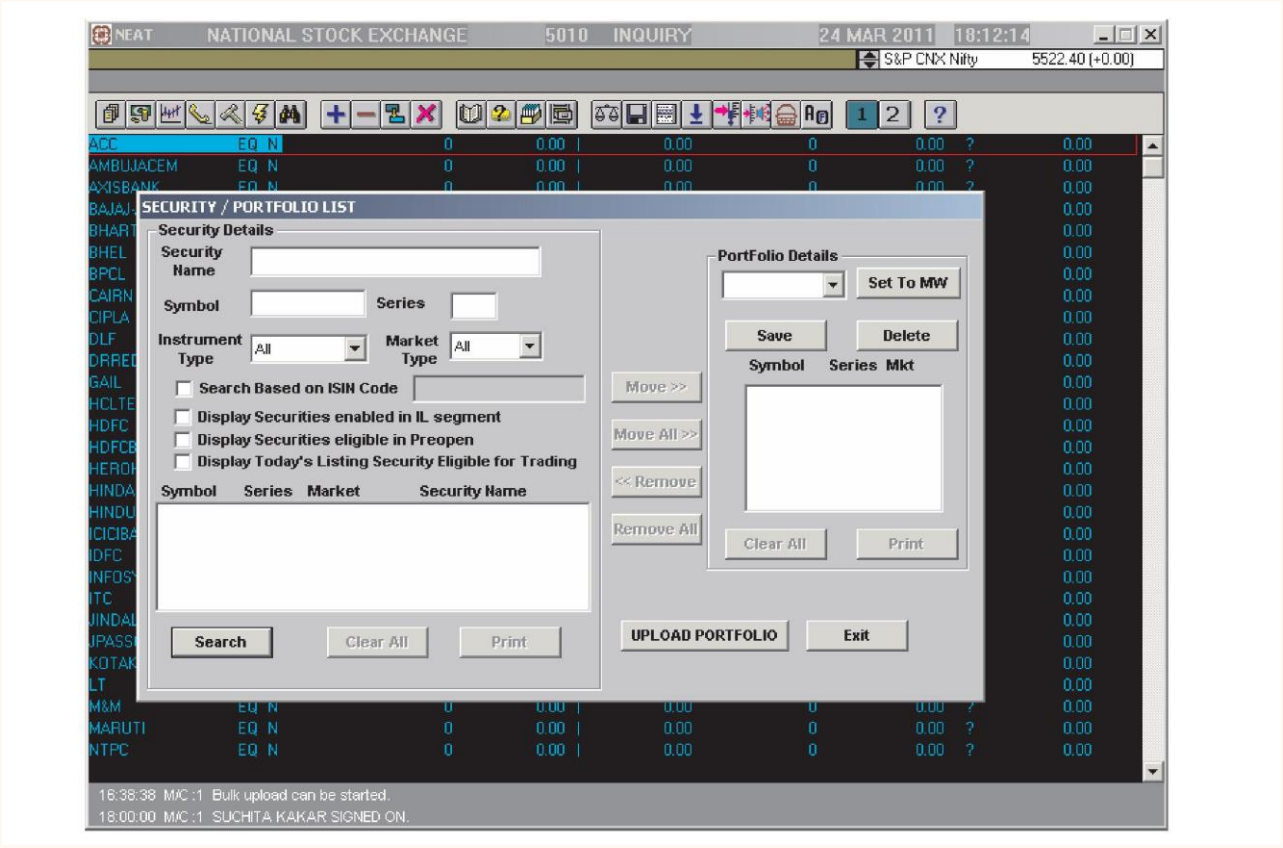


Figure 2.9: Security/Portfolio List window in NEAT CM

2.10.13 What is Multiple Index Broadcast and Graph?

This screen displays information of NSE indices namely Nifty 50, Nifty50 PR 1x Inverse, Nifty100 Liquid 15, Nifty Services Sector, Nifty Midcap 50, Nifty Dividend Opportunities 50, Nifty Free Float Small cap 100, Nifty PSE, Nifty MNC, Nifty Infrastructure, Nifty FMCG, Nifty Energy, Nifty Bank, Nifty 100, Nifty50 TR 1x Inverse, Nifty 11-15 yr G-Sec Index, Nifty 200, India VIX, Nifty 15 yr and above G-Sec Index, Nifty Auto, Nifty Media, Nifty Quality 30, Nifty PSU Bank, Nifty Metal, Nifty 500, Nifty IT, Nifty Commodities, Nifty CPSE, Nifty Financial Services, Nifty Pharma, Nifty Midcap Liquid 15, Nifty Free Float Midcap 100, Nifty50 PR 2x Leverage, Nifty Next 50, Nifty India Consumption, Nifty Growth Sectors 15, Nifty 4-8 yr G-Sec Index, Nifty 10 yr Benchmark G-Sec (Clean Price) Index, Nifty Composite G-Sec Index, Nifty50 TR 2x Leverage, Nifty50 Value 20, Nifty Realty, Nifty 8-13 yr G-Sec Index, Nifty 10 yr Benchmark G-Sec Index, Nifty50 Dividend Points and Nifty Private Bank. The indices are labelled vertically and the information is displayed against each index horizontally. The data displayed for each index is as follows:

(a) Current Index
(b) High Index
(c) Low Index
(d) Open Index
(e) Close Index
(f) % Change in Current Index (w.r.t. previous close index)
(g) 52 weeks High

(h) 52weeks low
(i) Up Moves
(j) Down Moves
(k) Market Capitalisation (in Rs. Lakh)

Index Graph displays all the indices on a real time basis to the market.

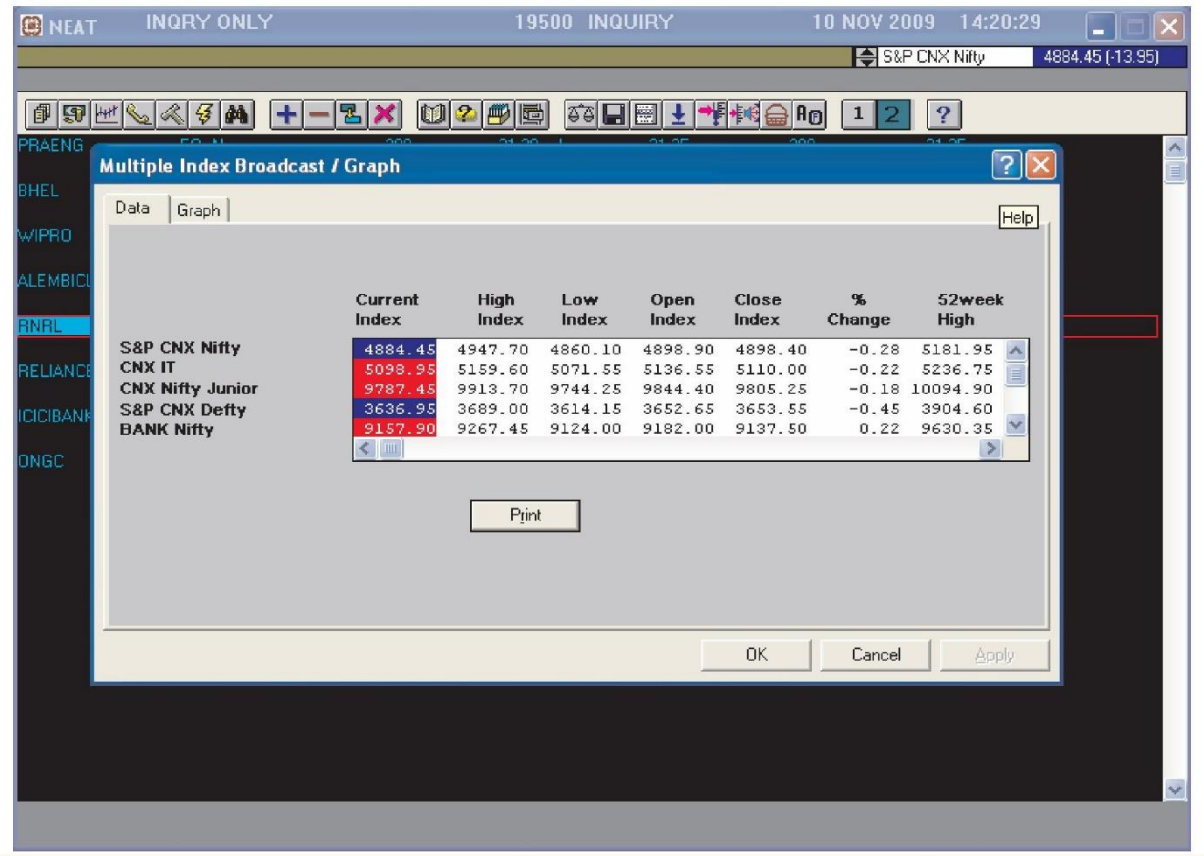


Figure 2.10 shows screenshot of multiple index broadcast window in NEAT CM.

2.10.14 What is Online Backup Facility?

On Line Backup is a facility that the user can invoke to take a backup of all order and trade related information for the user. The information available is for the current day only.

On the selection screen the user can select the various fields on which the output will be filtered. The fields that can be filtered are CLI, Market Type, Book Type, Symbol, Series, Instrument Type, Date, Time, Order Indicator, Trade Indicator, Buy/Sell Indicator, Order Numbers and Trade Numbers.

The user is provided the option to copy the files to any drive of the computer or on a floppy diskette. This utility generates two ASCII files namely Order.txt and Trade.txt. The user can specify any filename for Orders and Trades. This utility will help the user to generate the

Contract Notes. The user is requested to take backup first on the C:\ drive and subsequently copy to A:\ drive to avoid overloading PC capacity and abnormal log-off.

2.10.15 What is Basket Trading?

The purpose of basket trading is to provide NEAT users with a facility to create offline order entry file for a selected portfolio. On inputting the value, the orders are created for the selected portfolio of securities according to the ratios of their market capitalisations. An icon has been provided in the Toolbar which can be selected by the mouse to invoke the functionality.

In the basket trading functionality, the user first selects a portfolio from combo box. The portfolio in the combo box is user defined portfolios (which can be created or edited from the Security List screen which is an existing functionality). All user's defined Portfolios are automatically loaded in to the combo box. The User then allocates an amount to the portfolio by mentioning the amount in the 'Amount' edit box. The amount entered is in lakh and must be less than or equal to Rs. 3000 lakhs. If the amount entered is not sufficient to buy/sell a complete basket, a message "Insufficient amount for creating the basket" is displayed. Then, the User mentions whether he wants to buy or sell the Portfolio by selecting a choice from BUY/SELL combo box. The User has to mention the name of offline order file which would be generated. The Output Offline order file is always generated in the Basket directory of the current selected login drive. If a file with the given name already exists then it asks for overwriting the old file. A Reverse File with the same name is also generated in 'R_Basket' directory of the current login drive. The Reverse File contains reverse order (if user has selected buy then it contains sell orders and vice-versa). The user can mention order's duration (IOC or day) by selecting from a check box. The User can also specify PRO/CLI orders by selecting from the combo box. In case of CLI orders it is compulsory to mention the account number in the edit box. The participant's name can be mentioned. If mentioned it is verified whether it is a valid participant or not.

The amount mentioned in the 'Amount Edit' Box is divided among the securities of the portfolio, depending on their current market capitalisation, and the amount allocated per security is used to calculate the number of shares to be bought / sold for that security which is reflected in the offline order file. The number of shares is rounded off to the nearest integer. If the basket contains any security whose regular lot is not one, then the file will need to be corrected by the user to accommodate shares in tradable lots. If the portfolio contains a security which is suspended/not eligible in the chosen market then an error message is displayed on the screen.

All the orders generated through the offline order file are priced at the available market price. Quantity of shares of a particular security in portfolio is calculated as under:

$$\textbf{Number of Shares of a security in portfolio} = \frac{\textbf{Amount} * \textbf{Issued Capital for the security}}{\textbf{Current Portfolio Capitalization}}$$

where

Current Portfolio Capitalization = Summation [Last Traded Price (Previous Capitalisation close if not traded) * Number of Issued shares]

In case at the time of generating the basket if any of the constituents are not traded, the weightage of the security in the basket is determined using the previous close price. This price may become irrelevant if there has been a corporate action in the security for the day and the same has not yet been traded before

generation of the file. Similarly, basket facility will not be available for a new listed security till the time it is traded. Figure 2.11 shows screenshot of basket trading window in NEAT CM.

Three portfolio names viz "NIFTY 50", "Nifty JUNIOR" & "Nifty 100" are provided in Security / Portfolio List to generate offline order entry file using basket trading facility. In this case the file will be generated based on free float market capitalization for the user defined securities under these names.

Quantity of shares of a particular security in portfolio is calculated as under:

$$\textbf{Number of Shares of a portfolio} = \frac{\textbf{Amount} * \textbf{IssuedCapital for the security}}{\textbf{CurrentPortfolioCapitalisation}}$$

Where

Current Portfolio Capitalization = Summation [Last Traded Price (Previous close if not traded) * Number of Issued shares] * Free float factor

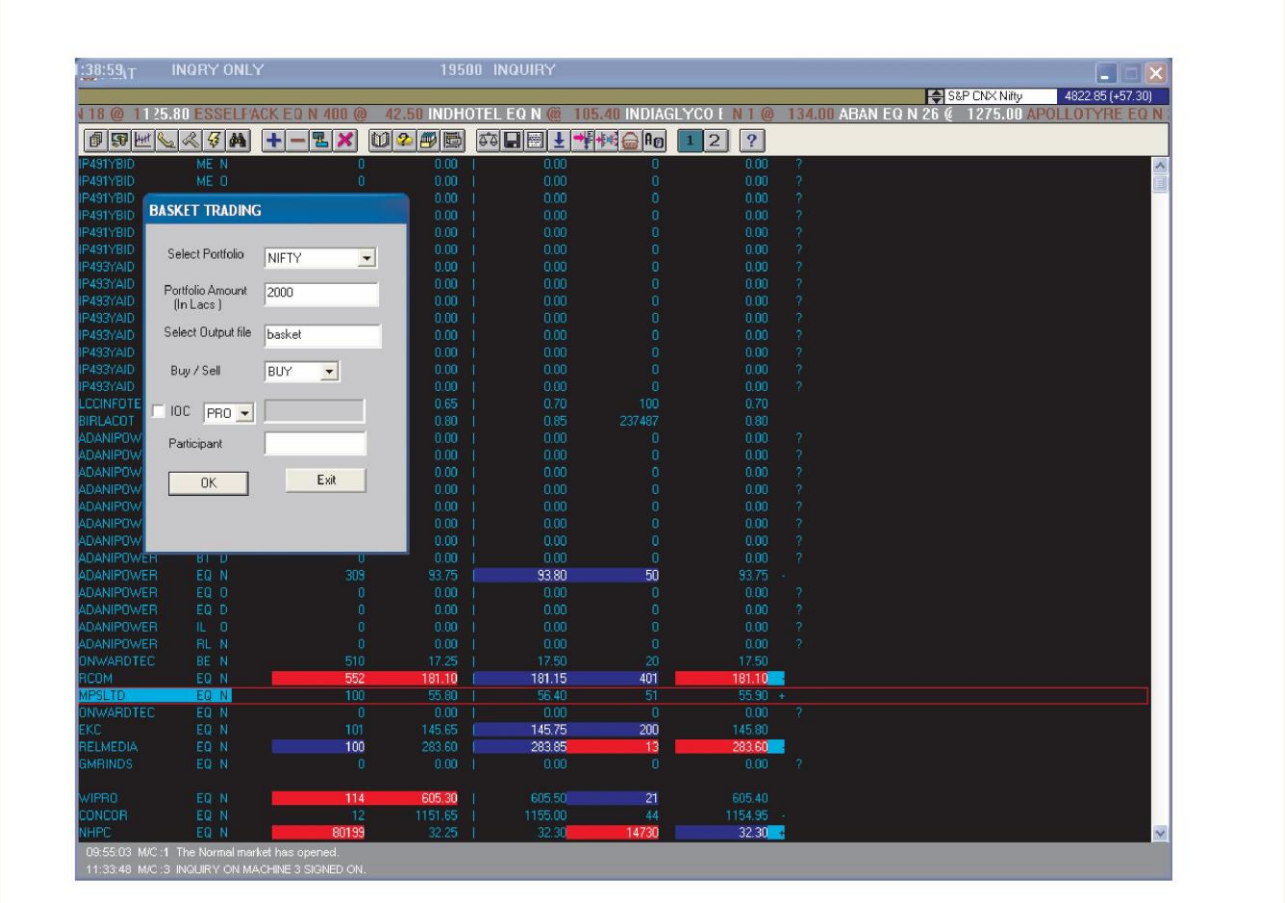


Figure 2.11: Basket Trading screen window in NEAT CM

2.10.16 What are Buy Back Trades?

As per SEBI Notification, dated November 14, 1998, buyback of securities is permitted in the secondary market. This is termed as 'Buy-Back from the Open Market'. In the open market, buyback of shares is

permitted through Stock Exchanges having electronic trading facility and such buyback orders are required to be identified upfront in the electronic trading screen as buyback orders.

The purpose of Buy Back Trade functionality is to give information to the market about the buyback trades executed from the start of the buyback period till current trading date in the securities whose buyback period is currently on. It provides information about Symbol, Series, Day's high price, Day's Low Price, Day's Weighted Average Price, Day's Volume, Total Volume, Highest/Lowest/Weighted Average Prices till previous day; Buy Back Start & End date.

The Buyback Trade functionality provides users with the information about the buyback trades going in various securities. The front screen shows Symbol, Series, Low price (Today), High price (Today), Weightage, Average price, Volume (Today) and Previous day Volume.

The user after selecting a particular row from the buyback list box can view further information viz. Symbol, Series, Start date, End date, Total Traded Qty (Till date), Previous High price, Previous Low price and Weighted Average Price till date of buyback scheme. The Buyback broadcast updates the information.

2.11 How are Orders managed on NEAT?

Order Management consists of entering orders, order modification, order cancellation and order matching.

2.11.1 What is Entering Orders?

The trading member can enter orders in the normal market, odd lot and auction market. A user can place orders in any of the above-mentioned markets by invoking the respective order entry screens. After doing so, the system automatically picks up information from the last invoked screen (e.g. Market Watch/MBP/OO/SQ and Security List). When the user invokes

the order entry screen, the fields that are taken as default are Symbol, Series and Book Type. In case of other fields, the system takes the following defaults:

Qty	Regular lot quantity available at best price on counter side
Price	Price of best counters order
Pro	Trading member ID of the user
Order Duration	Day
Disclosed Quantity	Fully Disclosed
Participant ID	Trading member ID of the user

What are Active & Passive Order?

When any order enters the trading system, it is an active order. It tries to find a match on the other side of the books. If it finds a match, a trade is generated. If it does not find a match, the order becomes a passive order and goes and sits in the order book.

What are Order Books?

As and when valid orders are entered or received by the trading system, they are first numbered, time stamped and then scanned for a potential match. This means that each order has a distinctive order number and a unique time stamp on it. If a match is not found, then the orders are stored in the books as per the price/time priority. Price priority means that if two orders are entered into the system, the order having the best price gets the higher priority. Time priority means if two orders having the same price is entered, the order that is entered first gets the higher priority. Best price for a sell order is the lowest price and for a buy order, it is the highest price.

The different order books in the NEAT system are as detailed below:

- **Pre-open Book**: An order during Preopen session has to be a Preopen (PO) order. All the Preopen orders are stacked in system till the Preopen phase. At the end of Preopen phase, the matching of Preopen orders takes place at the Final Opening Price. By default, the Preopen (PO) book appears in the order entry screen when the Normal Market is in Preopen and the security is eligible for Preopen Session. Order entry in preopen book type is allowed only during market status is in preopen.
- **Regular Lot Book:** An order that has no special condition associated with it is a Regular Lot order. When a dealer places this order, the system looks for a corresponding Regular Lot order existing in that market (Passive orders). If it does not find a match at the time it enters the system, the order is stacked in the Regular Lot book as a passive order. By default, the Regular Lot book appears in the order entry screen in the normal market. Buyback orders can be placed through the Regular Lot (RL) book in the Normal Market. The member can place a buyback order by specifying 'BUYBACKORD' in the Client Account field in the order entry screen. Such company buyback orders will be identified in MBP screen by an '*' (asterisk) indicator against such orders.
- **Stop Loss Book:** Stop Loss (SL) orders are released into the market when the last traded price for that security in the normal market reaches or surpasses the trigger price. Before triggering, the order does not participate in matching and the order cannot get traded. Untriggered stop loss orders are stacked in the stop loss book. The stop loss orders can be either a market order or a limit price order. For buy SL orders, the trigger price has to be less than or equal to the limit price. Similarly, for sell SL orders, the trigger price has to be greater than or equal to the limit price.
- **Odd Lot Book:** The Odd Lot book can be selected in the order entry screen in order to trade in the Odd Lot market. Order matching in this market takes place between two orders on the basis of quantity and price. To enter orders in the odd lot market, select the book type as OL.
- **Auction Order Book:** Auction order book stores orders entered by the trading members to participate in the Exchange initiated auctions. Auction orders can be initiator orders, competitor orders and solicitor orders.

What is Symbol & Series in relation to securities?

Securities can be taken as default values from the order entry screen from any of the inquiry screens such as MBP, OO, PT, AL, MI and SQ. In case the security is not set up in the Market Watch screen, the Security List can also be used to take the codes as default values.

Order entry in a security is not possible if that security is suspended from trading. Example, If a security is

suspended in the normal market a message “Security is suspended in the normal market” is displayed on the order entry screen. The label ‘Suspended’ is also displayed in the market watch screen for the setup security.

Order entry is also not possible in case the security is not eligible to trade in a particular market. E.g., If a security is not eligible to trade in the normal market a message “Security is not allowed to trade in normal market” is displayed on the order entry screen. In case the user types the symbol series incorrectly a message “Invalid symbol series” is displayed on the screen.

What is Quantity?

When the buy/sell order entry screen is invoked, the regular lot size available at the best price on the counter side gets defaulted in the order entry screen. In case auction book is selected for display, the quantity has to be specifically mentioned by the user. Quantity mentioned should be in multiples of regular lot size for that security.

What is Quantity Freeze?

All orders with very large quantities will receive quantity alert at member terminal. Currently, if member enters any order exceeding the lowest of the quantity given below, results in an alert which will read as “Order entered exceeds alert quantity limit. Confirm availability of adequate capital to proceed” and only after the member clicks the button ‘Yes’ the order will be further processed for execution.

A global alert quantity limit of more than 25000 irrespective of the issue size of the security, whichever is less.

What is Price of security?

Along with the regular lot quantity, the best price on the counter side is also taken as default value in the order entry screen. A user has the option to either enter the order at the default price or overwrite it with any other desired price. If a user mentions a price, it should be in multiples of the tick size for that particular security and within the day’s minimum/maximum price range, otherwise the order is not accepted by the system and an order rejection message/ confirmation slip is generated. For a No price band scrips(scrip), if a price outside the Operational Range is entered, the order results in a price freeze and is not accepted as a valid order till the time the Exchange approves it. All auction orders require the user to mention a price.

In case the user enters an order with a ‘Market’ price, the order takes the last traded price in the respective market as the market price, provided no passive order exists on the same side or the counter side in that security and in that market. On the other hand, if suitable orders exist on the counter side, then the order takes the price of the counter order and a trade is generated. If an order exists on the same side but no orders exists on the counter side, then the order takes the price of the best order on that side and is stacked immediately below it. If the security has never been traded, then the market order takes the value of the base price and sits in the books as a passive order.

Another option provided to Users in the Pre-open phase of the Normal market is ‘ATO’ or the ‘At Open Price’ concept. ‘Market’ orders entered in the pre-open are termed as ‘ATO’. Based on the opening algorithm, the system computes a potential opening price. Once the market is open for trading, the ATO orders take these

prices.

In case of stop loss orders, a user has the flexibility of specifying a limit price along with the trigger price. This limit price can be selected as equal to the trigger price in the price field so as to leave it with the word 'Price'. Alternatively, a user can specify a limit price as 'Market' price.

What are Circuit Breakers?

The Exchange has implemented index-based market-wide circuit breakers in compulsory rolling settlement with effect from July 02, 2001. In addition to the circuit breakers, price bands are also applicable on individual securities.

Index-based Market-wide Circuit Breakers: The index-based market-wide circuit breaker system applies at 3 stages of the index movement, either way viz. at 10%, 15% and 20%. These circuit breakers when triggered bring about a coordinated trading halt in all equity and equity derivative markets nationwide. The market-wide circuit breakers are triggered by movement of either the BSE Sensex or the Nifty 50, whichever is breached earlier.

The extent of duration of the market halt and pre-open session is as given below:

Trigger limit	Trigger time	Market halt duration	Pre-open call auction session post market halt
10%	Before 1:00 pm.	45 Minutes	15 Minutes
	At or after 1:00 pm up to 2.30 pm	15 Minutes	15 Minutes
	At or after 2.30 pm	No halt	Not applicable
15%	Before 1 pm	1 hour 45 minutes	15 Minutes
	At or after 1:00 pm before 2:00 pm	45 Minutes	15 Minutes
	On or after 2:00 pm	Remainder of the day	Not applicable
20%	Any time during market hours	Remainder of the day	Not applicable

These percentages are translated into absolute points of index variations on a daily basis. At the end of each trading day, these absolute points of index variations are revised for the applicability for the next trading day.

Price Bands

Daily price bands are applicable on securities as below:

- Daily price bands of 5% (either way) on securities as specified by the Exchange.
- Daily price bands of 10% (either way) on securities as specified by the Exchange.
- No price bands are applicable on scrips on which derivative products are available or scrips included in indices on which derivative products are available. In order to prevent members from entering orders at non-genuine prices in such securities, the Exchange has fixed operating range of 10% for such securities.

- Price bands of 20% (either way) on all remaining scrips (including debentures, preference shares etc).

The price bands for the securities in the Limited Physical Market are the same as those applicable for the securities in the Normal Market. For auction market the price bands of 20% are applicable.

What are the various Order Types and Conditions?

The system allows the trading members to enter orders with various conditions attached to them as per their requirements. These conditions are broadly divided into Time Conditions, Quantity Conditions, Price Conditions and Other Conditions. Several combinations of the above are allowed thereby providing enormous flexibility to the users.

The order types and conditions are summarised below:

(i) **Time Conditions**

(a) **DAY:** All orders entered into the system are currently considered as Day orders only.

(b) **IOC:** An Immediate or Cancel (IOC) order allows the user to buy or sell a security as soon as the order is released into the system, failing which the order is cancelled from the system. Partial match is possible for the order, and the unmatched portion of the order is cancelled immediately.

(ii) **Quantity Conditions**

(a) **DQ:** An order with a Disclosed Quantity (DQ) allows the user to disclose only a portion of the order quantity to the market. For example, if the order quantity is 10,000 and the disclosed quantity is 2,000, then only 2,000 is released to the market. After this quantity is fully matched, a subsequent quantity of 2,000 is disclosed. Thus, totally five disclosures with the same order number are shown one after the other in the market.

(iii) **Price Conditions**

(a) **Market:** Market orders are orders for which price is specified as 'MKT' at the time the order is entered. For such orders, the system determines the price.

(b) **Stop-Loss:** This facility allows the user to release an order into the system, after the market price of the security reaches or crosses a threshold price called trigger price. Example: If for stop loss buy order, the trigger is Rs.93.00, the limit price is Rs.95.00 and the market (last traded) price is Rs.90.00, then this order is released into the system once the market price reaches or exceeds Rs.93.00. This order is added to the regular lot book with time of triggering as the time stamp, as a limit order of Rs.95.00. All stop loss orders are kept in a separate book (stop loss book) in the system until they are triggered.

(c) **Trigger Price:** Price at which an order gets triggered from the stop loss book.

(d) **Limit Price:** Price of the orders after triggering from stop loss book.

(iv) **Other Conditions**

(a) **Proprietary (PRO) / Client (CLI):** A user can enter orders on his own account or on behalf of

clients. By default, the system assumes that the user is entering orders on the trading member's own account. The client account field is an alphanumeric field. It is mandatory to enter the client account number in the field provided in case the user enters orders on behalf of clients. The system will assign a code 'Cli' to such an order. The user cannot specify the trading member code in the client account field.

(b) **Participant Code:** In case of "Pro" order by default, the system displays the trading member ID of the user in the participant field. In case of Cli order if "Participant ID" exist in client master maintenance the same will appear in participant filed, else trading member ID will be reflected. Only a valid participant code can be entered. In case the participant is suspended, a message to this effect is displayed to the user on the order entry screen.

2.11.2 How to modify orders?

All orders can be modified in the system till the time they do not get fully traded and only during market hours. Once an order is modified, the branch order value limit for the branch gets adjusted automatically. Following is the corporate hierarchy for performing order modification functionality:

(i) A dealer can modify only the orders entered by him

(ii) A branch manager can modify his own orders or orders of any dealer under his branch

(iii) A corporate manager can modify his own orders or orders of all dealers and branch managers of the trading member firm.

The corporate manager/branch manager, however, cannot modify order details such that it exceeds the branch order value limit set for the day. Order modification cannot be performed by/for a trading member who is suspended or de-activated by the Exchange for any reason.

2.11.3 How to cancel orders?

Order cancellation functionality can be performed only for orders which have not been fully or partially traded (for the untraded part of partially traded orders only) and only during market hours and in pre-open period.

- **Single Order Cancellation**

  Single order cancellation can be done during trading hours either by selecting the order from the outstanding order screen or from the function key provided. Order cancellation functionality is available for all book types. But the user is not allowed to cancel auction initiation and competitor orders in auction market.

- **Quick Order Cancellation**

  Quick Order Cancellation (Cancel All) is an extension of Single Order Cancellation enabling a user to cancel multiple outstanding orders in various trading books subject to the corporate hierarchy. The different filters available for cancelling orders by using quick order cancellation facility are symbol, series, book type, branch, user, PRO/CLI, client account number and buy/sell. Quick order cancellation can be performed by invoking the function key provided and cannot be done from the outstanding orders screen. If the criterion is not found to be correct by a trading member then an error message is

displayed and the focus is set on the incorrect field to enable the user to correct it. If the selection criterion is correct then a message appears on the quick order cancellation screen stating the number of buy and sell orders to be cancelled. Quick order cancellation can be done only during market hours.

- **Order Cancellation for Disabled Member**

  The Exchange suspends a member from trading due to various reasons. In case a member is suspended from trading by the Exchange, all pending orders in all books of the member are immediately cancelled by the system. A message: "Order Number ..... cancelled due to suspension" is displayed at the message window screen at the trader workstation. Inquiry screens such as MBP, Market Watch and trader specific screens such as Outstanding Orders, Activity Log etc. get updated accordingly.

2.11.4 How are orders matched?

The buy and sell orders are matched on Book Type, Symbol, Series, Quantity and Price.

What is Pre-open Matching Priority?

The opening price is determined based on the principle of demand supply mechanism. The equilibrium price is the price at which the maximum volume is executable. In case more than one price meets the said criteria, the equilibrium price is the price at which there is minimum unmatched order quantity. In case more than one price has same minimum order unmatched quantity, the equilibrium price is the price closest to the previous day's closing price. In case the previous day's closing price is the mid-value of pair of prices which are closest to it, then the previous day's closing price itself will be taken as the equilibrium price. In case of corporate action, previous day's closing price is adjusted to the closing price or the base price. Both limit and market orders are reckoned for computation of equilibrium price. The equilibrium price determined in pre-open session is considered as open price for the day. In case if only market orders exist both in the buy and sell side, then order is matched at previous days close price or adjusted close price / base price. Previous day's close or adjusted close price / base price is the opening price. In case if no price is discovered in pre-open session, the price of first trade in the normal market is the open price.

What is Matching Priority?

The best sell order is the order with the lowest price and a best buy order is the order with the highest price. The unmatched orders are queued in the system by the following priority:

(a) **Buy Price:** A buy order with a higher price gets a higher priority and similarly, a sell order with a lower price gets a higher priority. Example, Consider the following buy orders:

1) 100 shares @ Rs. 35 at time 9:30 a.m.
2) 500 shares @ Rs. 35.05 at time 9:43 a.m.

The second order price is greater than the first order price and therefore is the best buy order.

(b) **By Time:** If there is more than one order at the same price, the order entered earlier gets a higher priority. E.g., consider the following sell orders:

1) 200 shares @ Rs. 72.75 at time 9:30 a.m.
2) 300 shares @ Rs. 72.75 at time 9:35 a.m.

Both orders have the same price but they were entered in the system at different time. The first order was entered before the second order and therefore is the best sell order.

As and when valid orders are entered or received by the system, they are first numbered, time stamped and then scanned for a potential match. This means that each order has a distinctive order number and a unique time stamp on it. If a match is not found, then the orders are stored in the books as per the price/time priority.

An active buy order matches with the best passive sell order if the price of the passive sell order is less than or equal to the price of the active buy order. Similarly, an active sell order matches with the best passive buy order if the price of the passive buy order is greater than or equal to the price of the active sell order.

What is Regular Lot Matching?

- If the combined quantity of one or more matching orders on the opposite side of the regular lot book is equal to or more than the quantity of active order, the active order is *completely traded.*
- If the combined quantity of one or more matching orders on the opposite side of the regular lot book is equal to or less than the quantity of active order, the active order is *partially traded.*
- If after trading any quantity is left untraded, the order is added to the regular lot book in the price/time priority.
- The orders with the IOC attribute try to match maximum possible quantity after they are entered. Any remaining quantity is cancelled.
- The orders with DQ attribute disclose only a part of the total order quantity to the market.
- An active order with disclosed condition tries to maximise the quantity as possible regardless of the disclosed quantity i.e., a single trade takes place for a quantity more than the disclosed quantity.

If an active order with the disclosed quantity cannot trade its total quantity, it is added to the regular lot book in the price/time priority. The disclosed order quantity is determined as follows:

a) If the remaining order quantity is less than or equal to the original disclosed quantity, the disclosed order quantity is set as equal to remaining order quantity.

b) If the remaining order quantity is more than the original disclosed quantity, the disclosed order quantity is set to the original disclosed quantity.

Once an order with the disclosed quantity has become a passive order, it trades only in units of disclosed quantity or less. However, if there is no other competing order with the same price, a single trade of as much quantity as possible takes place between the two orders.

When the entire disclosed order quantity is fully traded the disclosed quantity gets replenished and this continues till the entire order quantity is fully traded. Each time the disclosed quantity is replenished; the order is stamped with the current trading time and added to the regular order book as fresh order.

What is Stop Loss Matching?

All stop loss orders entered into the system are stored in the stop loss book. These orders can contain two prices:

(a) **Trigger Price**: It is the price at which the order gets triggered from the stop loss book.

(b) **Limit Price**: It is the price for orders after the orders get triggered from the stop loss book. If the limit

price is not specified, the trigger price is taken as the limit price for the order. The stop loss orders are prioritised in the stop loss book with the most likely order to trigger first and the least likely to trigger last. The priority is same as that of the regular lot book.

The stop loss condition is met under the following circumstances:

(a) **Sell Order:** A sell order in the stop loss book gets triggered when the last traded price in the normal market reaches or falls below the trigger price of the order.

(b) **Buy Order:** A buy order in the stop loss book gets triggered when the last traded price in the normal market reaches or exceeds the trigger price of the order.

When a stop loss order with IOC condition enters the system, the order is released in the market after it is triggered. Once triggered, the order scans the counter order book for a suitable match to result in a trade or else is cancelled by the system.

What is Auction Matching?

All auction orders are entered into the auction order book. The rules for matching of auctions are similar to that of the regular lot book except for the following points:

(a) Auction order matching takes place at the end of the solicitor period for the auction.

(b) Auction matching takes place only across orders belonging to the same auction.

(c) All auction trades take place at the auction price.

Validation Check

While matching orders, the system performs the validation check, if the participant of any of the orders is 'Suspended', the trade does not go through.

2.12 What is Internet Broking?

SEBI Committee approved the use of Internet as an Order Routing System (ORS) for communicating clients' orders to the Exchanges through brokers. ORS enables investors to place orders with his broker and have control over the information and quotes and to hit the quote on an on-line basis. Once the broker's system receives the order, it checks the authenticity of the client electronically and then routes the order to the appropriate Exchange for execution. On execution of the order, it is confirmed on real time basis. Investor receives reports on margin requirement, payments and delivery obligations through the system. His ledger and portfolio account get updated online.

NSE was the first stock exchange in India to launch internet trading in early February 2000. It provides web-based access to investors to trade directly on the Exchange. The orders originating from the PCs of the investors are routed through the Internet to the trading terminals of the designated brokers with whom they are connected and further to the Exchange for trade execution. Soon after these orders get matched and result into trades, the investors get confirmation about them on their PCs through the same internet route.

2.13 What is Co-location?

The term ‘‘co-location/proximity hosting services’’ means space, power, telecommunications, and other ancillary products and services made available to market participants for the purpose of enabling them to position their computer systems/servers in close proximity to the transaction execution facility (at the Exchange). Exchanges internationally are introducing co-location services to support high frequency trading using Algorithmic Trading (ALGO) and Direct Market Access (DMA). In keeping with the global trends and maintaining high service excellence, NSE started co-location facility in Jan 2010. The state-of-the-art co-location facility at NSE provides one of the most modern datacentre facilities.

2.14 How to trade on Wireless Application Protocol (WAP)?

SEBI has also approved trading through wireless medium on WAP Platform. NSE-IT launched the Wireless Application Protocol (WAP) in November 2000. This provides access to its order book through the hand-held devices, which use WAP technology. This serves primarily retail investors who are mobile and want to trade from any place when the market prices for stocks at their choice are attractive. Only SEBI registered members who have been granted permission by the Exchange for providing internet-based trading services can introduce the service after obtaining permission from the Exchange.

Key Words

Trading, Stock Exchange, NEAT, MBP, Online Back Up, Basket Trading, Square Off

Questions for Practice

1) The ..... is a feature available in the system to get instantaneous market information?
   a) Activity Log
   b) Market Movement
   c) Snap Quote
   d) None of the above

2) As per SEBI Notification, dated November 14, 1998, buyback of securities is permitted in the ..... market?
   a) Primary Market
   b) Secondary Market
   c) Both a & b
   d) None of the above

3) The supplementary menu list box has which of the following options?
   a) Colour Selection
   b) Market Movement
   c) Display FO Ticker
   d) All of the above

4) When user clicks on ....., an offline file will be generated containing counter orders?
   a) Off Square
   b) Square Off
   c) Offline Back Up Window
   d) None of the above

5) When any order enters the trading system, it is ..... order?
   a) Active Order
   b) Passive Order
   c) Both a & b
   d) None of the above

6) Which of the following is the corporate hierarchy for performing order modification functionality?
   a) A corporate manager can modify his own orders or orders of all dealers and branch managers of the trading member firm.
   b) A corporate manager can modify his own orders or orders of all dealers and branch managers of the trading member firm
   c) A dealer can modify only the orders entered by him
   d) All of the above

7) The buy and sell orders are matched on .....?
   a) Book Type
   b) Symbol
   c) Series

d) All of the above

8) The best sell order is the order with the ..... price and a best buy order are the order with the ..... price.
   a) Highest, Lowest
   b) Highest, same
   c) **Lowest, highest**
   d) Lowest, same

9) ORS Stands for?
   a) Order Routing System
   b) Order Response System
   c) Order Rider System
   d) None of the above

10) WAP Stands for?
   a) Wireless Application Password
   b) Wireless Application Protocol
   c) Wireless Authorised Password
   d) None of the above

Chapter 3: Clearing, Settlement and Legal Framework

In this Chapter, you will learn:

- Clearing and Settlement Process and Settlement Cycle
- Transaction cycle and various Settlement Agencies
- Securities and Funds Settlement
- Risks in Settlement and Risk Management
- SEBI Regulations
- Depositories Act
- Indian Contract Act
- Income Tax Act

3.1 What is Clearing and Settlement of Trades?

After a trade is executed, it needs to be settled. The clearing and settlement mechanism in Indian securities market has witnessed significant changes and several innovations during the last decade. These include use of the state-of-art information technology, emergence of clearing corporations to assume counterparty risk, shorter settlement cycle, dematerialization, electronic transfer of securities and fine-tuned risk management system.

Till January 2002, the stock exchanges in India were following a system of account period settlement for cash market transactions. An account period settlement is a settlement where the trades pertaining to a period stretching over more than one day are settled. For example, trades for the period Monday to Friday are settled together. The obligations for the account period are settled on a net basis.

Instead of the account period settlement, **T+2 rolling settlement** was introduced for all securities. Rolling settlement refers to the settling of trades at a standard fixed period of days after the execution occurred. In a rolling settlement, each trading day is considered as a trading period and trades executed during the day are settled based on the net obligations for the day.

3.2 List the key terminologies used in Clearing and Settlement process.

Pay-in day is the day when the trading members/brokers are required to make payment of funds or delivery of securities to the clearing corporation of the Exchange for all transactions traded by or through them in the respective settlement period.

(a) **Securities Pay-in**: The process of delivering securities to the clearing corporation to effect settlement of a sale transaction.

(b) **Funds Pay-in**: The process of transfer of funds to the clearing corporation to pay for purchase transactions.

Pay-out day is the day when the clearing corporation of the stock exchange transfers funds and securities to the broker/trading member who have receivable obligation.

(a) **Securities Pay-out:** The process of receiving securities from the clearing corporation to complete

the securities settlement of a purchase transaction.

(b) **Funds Pay-out:** The process of transfers of funds from the clearing corporation to complete the funds settlement of a sale transaction.

3.3 What is a Transaction Cycle?

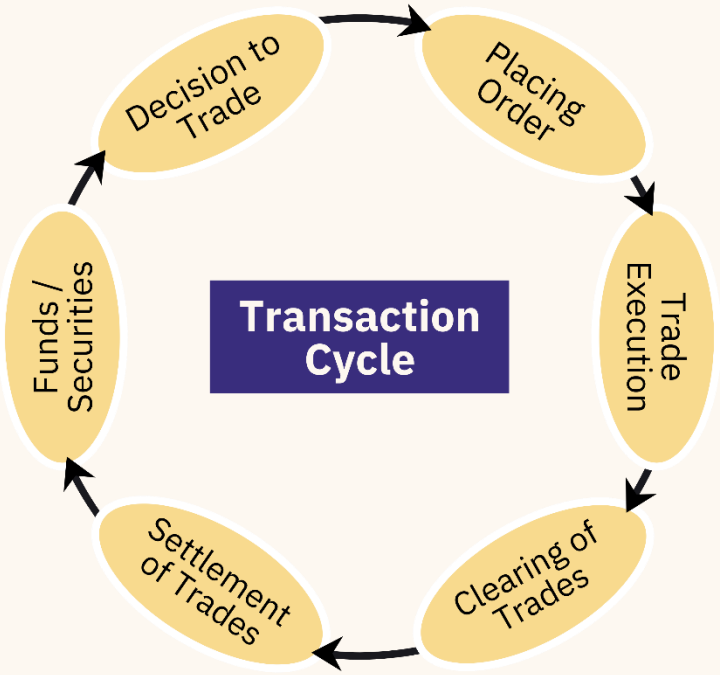


Figure 3.1: Transaction Cycle

What are the Steps in Transaction Cycle?

(a) A person holding assets (securities/funds), either to meet his liquidity needs or to reshuffle his holdings in response to changes in his perception about risk and return of the assets, decides to buy or sell the securities.

(b) He selects a broker and instructs him to place buy/sell order on an exchange.

(c) The order is converted to a trade as soon as it finds a matching sell/buy order.

(d) At the end of the trade cycle, the trades are netted to determine the obligations of the trading members to deliver securities/funds as per settlement schedule.

(e) Buyer (seller) delivers funds (securities) and receives securities (funds) and acquires ownership of the securities. A securities transaction cycle is presented in Figure 3.1.

3.4 Which are the Settlement Agencies?

The roles of several entities involved in the process of clearing and settling the trades executed on Exchanges are explained as follows:

(a) **Clearing Corporation (NSCCL):** The NSCCL is responsible for post-trade activities of a stock exchange. Clearing and settlement of trades and risk management are its central functions. It clears all trades, determines obligations of members, arranges for pay-in of funds/securities, receives funds / securities, processes for shortages in funds/ securities, arranges for pay-out of funds/securities to members, guarantees settlement, and collects and maintains margins / collateral/ base capital / other funds. Clearing Members: They are responsible for settling their obligations as determined by the NSCCL. They have to make available funds and/or securities in the designated accounts with clearing bank/depository participant, as the case may be, to meet their obligations on the settlement day. In the capital market segment, all trading members of the Exchange are required to become the Clearing Member of the Clearing Corporation.

(b) **Custodians:** A custodian is an entity who is responsible for safeguarding the documentary evidence of the title to property like share certificates, etc. The title to the custodian's property remains vested with the original holder, or in their nominee(s), or custodian trustee, as the case may be. In NSCCL, custodian is a clearing member but not a trading member. The custodian settles trades assigned by trading members. The custodian is required to confirm whether it is going to settle a particular trade or not. If it is confirmed, the NSCCL assigns that obligation to that custodian and the custodian is required to settle it on the settlement day. If the custodian rejects the trade, the obligation is assigned back to the trading / clearing member.

(c) **Clearing Banks**: Clearing banks are a key link between the clearing members and NSCCL for funds settlement. Every clearing member is required to open a dedicated settlement account with one of the clearing banks. Based on his obligation as determined through clearing, the clearing member makes funds available in the clearing account for the pay-in and receives funds in case of a pay-out. Multiple clearing banks provide advantages of competitive forces, facilitate introduction of new products viz. working capital funding, anywhere banking facilities, the option to members to settle funds through a bank, which provides the maximum services suitable to the member.

Functions of Clearing Banks

The clearing banks are required to provide the following services as a single window to all clearing members of National Securities Clearing Corporation Ltd. as also to the clearing corporation:

- Branch network in cities that cover bulk of the trading cum clearing members
- High level automation including Real time gross settlement (RTGS)* and electronic funds transfer (EFT) facilities
- Facilities like (i) dedicated branch facilities (ii) software to interface with the clearing corporation (iii) access to accounts information on a real time basis
- Value-added services to members such as free-of-cost funds transfer across centres. etc.
- Providing working capital funds
- Services as Depository Participants (an agent of the depository through which it interfaces with the investor)
- Other Capital Market related facilities
- All other banking facilities like issuing bank guarantees / credit facilities, etc.

* *Real Time Gross Settlement (RTGS) is the concept designed to achieve sound risk management in the settlement of*

interbank payments. Transactions are settled across accounts held at the Central Bank on a continuous gross basis where settlement is immediate, final and irrevocable.

(d) **Depositories:** A depository is an entity where the securities of an investor are held in electronic form. The person who holds a demat account is a beneficiary owner. In case of a joint account, the account holders are beneficiary holders of that joint account. Depositories help in the settlement of the dematerialised securities. Each custodian/ clearing member is required to maintain a clearing pool account with the depositories. He is required to make available the required securities in the designated account on settlement day. The depository runs an electronic file to transfer the securities from accounts of the custodians/clearing member to that of NSCCL. As per the schedule of allocation of securities determined by the NSCCL, the depositories transfer the securities on the pay-out day from the account of the NSCCL to those of members/ custodians.

3.5 What are the steps in the Clearing and Settlement Process?

While NSE provides a platform for trading to its trading members, the National Securities Clearing Corporation Ltd. (NSCCL) determines the funds/securities obligations of the trading members and ensures that trading members meet their obligations. NSCCL becomes the legal counterparty to the net settlement obligations of every member. This principle is called 'novation' and NSCCL is obligated to meet all settlement obligations, regardless of member defaults, without any discretion. Once a member fails on any obligations, NSCCL immediately cuts off trading and initiates recovery.

3.5.1 What is Clearing Process?

Determination of Obligation: NSCCL determines what counter-parties owe and what counterparties are due to receive on the settlement date. The NSCCL interposes itself as a central counterparty between the counterparties to trades and nets the positions so that a member has security wise net obligation to receive or deliver a security and has to either pay or receive funds.

At the end of each trading day, concluded or locked-in trades are received from NSE by NSCCL. NSCCL determines the cumulative obligations of each member and electronically transfers the data to Clearing Members (CMs). This implies that all trades concluded during a particular trading period are settled together. A multilateral netting procedure is adopted to determine the net settlement obligations (delivery / receipt positions) of CMs. NSCCL then allocates or assigns delivery of securities inter se the members to arrive at the delivery and receipt obligation of funds and securities by each member.

3.5.2 What is a Settlement Process?

The settlement process begins as soon as member's obligations are determined through the clearing process. The clearing banks and depositories provide the necessary interface between the custodians/clearing members (who clear for the trading members or their own transactions) for settlement of funds/securities obligations of trading members. The clearing corporation provides a major link between the clearing banks, clearing members and the depositories. This link ensures actual movement of funds and securities on the prescribed pay-in and payout day. The core processes involved in the settlement process are:

(a) **Pay-in of Funds and Securities:** The members bring in their funds/securities to the NSCCL. They make available required securities in designated accounts with the depositories by the prescribed pay-in time. The depositories move the securities available in the accounts of members to the account of the NSCCL. Likewise, members with funds obligations make available required funds in the designated accounts with clearing banks by the prescribed pay-in time. The NSCCL sends electronic instructions to the clearing banks to debit member's accounts to the extent of payment obligations. The banks process these instructions, debit accounts of members and credit accounts of the NSCCL.

(b) **Pay-out of Funds and Securities:** After processing for shortages of funds/securities and arranging for movement of funds from surplus banks to deficit banks through RBI clearing, the NSCCL sends electronic instructions to the depositories/clearing banks to release pay-out of securities/funds. The depositories and clearing banks debit accounts of NSCCL and credit settlement accounts of members. Settlement is complete upon release of pay-out of funds and securities to custodians/members.

Settlement is deemed to be complete upon declaration and release of pay-out of funds and securities. Exceptions may arise because of short delivery of securities by CMs, bad deliveries or company objections on the pay-out day. (The detailed explanation of securities and funds settlement follows in the later section).

NSCCL identifies short deliveries (discussed later) and conducts a buying-in auction on the day after the pay-out day through the NSE trading system. The delivering CM is debited by an amount equivalent to the securities not delivered and valued at a valuation price (the closing price as announced by NSE on the day previous to the day of the valuation). If the buy-in auction price is more than the valuation price, the CM is required to make good the difference. All shortages not bought-in are deemed closed out at the highest price between the first day of the trading period till the day of squaring off or closing price on the auction day plus 20%, whichever is higher. This amount is credited to the receiving member's account on the auction pay-out day.

The settlement process for transactions in securities in the CM segment of NSE is presented in the Figure 3.2.

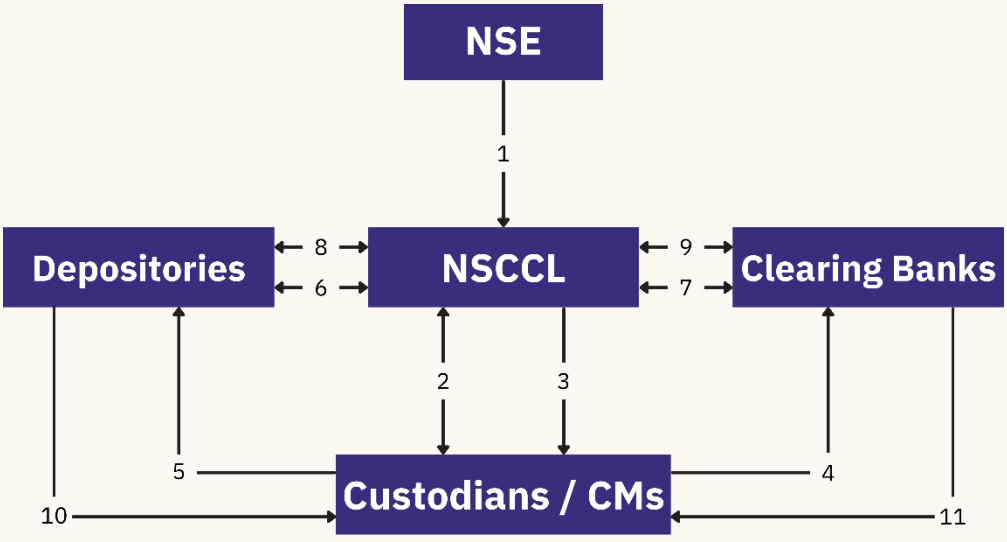


Figure 3.2 Settlement Process in CM Segment of NSE

Explanation

(1) Trade details from Exchange to NSCCL (real-time and end of day trade file).
(2) NSCCL notifies the consummated trade details to CMs/custodians who affirm back. Based on the affirmation, NSCCL applies multilateral netting and determines obligations.
(3) Download of obligation and pay-in advice of funds/securities.
(4) Instructions to clearing banks to make funds available by pay-in time.
(5) Instructions to depositories to make securities available by pay-in-time.
(6) Pay-in of securities (NSCCL advises depository to debit pool account of custodians/ CMs and credit its account and depository does it).
(7) Pay-in of funds (NSCCL advises Clearing Banks to debit account of custodians/CMs and credit its account and clearing bank does it).
(8) Pay-out of securities (NSCCL advises depository to credit pool account of custodians/ CMs and debit its account and depository does it).
(9) Pay-out of funds (NSCCL advises Clearing Banks to credit account of custodians/CMs and debit its account and clearing bank does it).
(10) Depository informs custodians/CMs through DPs.
(11) Clearing Banks inform custodians/CMs.

3.5.3 What is a Settlement Cycle?

Settlement cycles for securities in dematerialised and physical mode is explained below:

Settlement Cycle for Dematerialised Securities

(1) **Normal Market:** The trades executed each trading day are considered as a trading period and trades executed during the day are settled based on the net obligations for the day. At NSE, trades in rolling settlement are settled on a T+2 basis i.e. on the 2nd working day. Typically trades taking place on Monday are settled on Wednesday, Tuesday's trades settled on Thursday and so on.

A tabular representation of the settlement cycle for rolling settlement is given below in Table 3.1:

Table 3.1: Settlement Cycle – Normal Market

	Activity	Day
Trading	Rolling Settlement Trading	T
Clearing	Custodial Confirmation	T+1 working days
	Delivery Generation	T+1 working day
Settlement	Securities and Funds pay-in	T+2 working days
	Securities and Funds pay-out	T+2 working days
	Valuation of shortages based on closing prices (at T+1 closing prices)	T+2 working days

Table 3.1: Settlement Cycle – Normal Market (Contd.)

	Activity	Day
Post Settlement	Auction	T+2 working days
	Auction settlement	T+3 working days
	Bad Delivery Reporting	T+4 working days
	Rectified bad delivery pay-in and pay-out	T+6 working days
	Re-bad delivery reporting and pickup	T+8 working days
	Close out of re-bad delivery and funds pay-in & pay-out	T+9 working days

(2) **Inter Institutional Deals:** Trading in this market segment is available for 'institutional investors' only. In order to ensure that the overall FII limits are not violated, buying and selling in this segment is restricted to specific clients. Members are required to enter the custodian participant code at the time of order entry and to ensure that the selling/ buying restrictions are strictly adhered to. A sell order entered by trading members on behalf of clients other than GDR/ADR/FDI/NRI/PIO/FII or a buy order entered by trading members on behalf of client other than (GDR/ADR/FDI/NRI/PIO/FII/FI/Banks/ Mutual Funds/Insurance Companies, is deemed to be invalid. The member entering the invalid order is further liable for disciplinary action, which may include penalties, penal action, withdrawal of trading facilities, suspension, etc.

Deals executed in this segment are cleared on a T+2 rolling basis. Settlement of all transactions is compulsorily in demat mode only. The settlement cycle for this segment is given below in Table 3.2:

Table 3.2: Settlement Cycle – Physical Securities

	Activity	Day
Trading	Rolling Settlement Trading	T
Clearing	Custodial Confirmation	T+1 working days
	Delivery Generation	T+1 working days
Settlement	Securities and Funds pay-in	T+2 working days
	Securities and Funds pay-out	T+2 working days
Post Settlement	Assigning of shortages for close out	T+2 working days
	Reporting and pick-up of bad delivery	T+4 working days
	Close out of shortages	T+4working days
	Replacement of bad delivery	T+6 working days
	Reporting of re-bad and pick-up	T+8 working days
	Close out of re-bad delivery	T+9 working days

3.6 How are securities and funds settled?

Settlement is done from two aspect- Securities settlement and Funds settlement (Figure 3.3) These are discussed below.

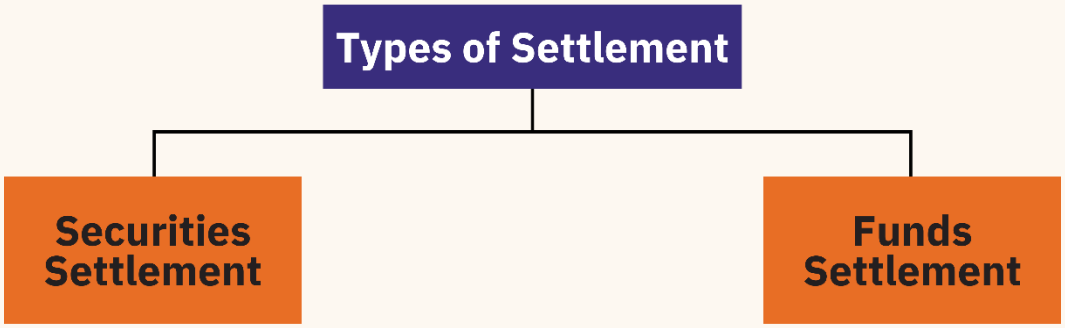


Figure 3.3 Types of Settlement

3.6.1 What is Securities Settlement?

(a) The securities obligations of members are downloaded to members/custodians by NSCCL after the end of the trading day.

(b) The members / custodians deliver the securities to the clearing corporation on the pay- in day in case of physical settlement and make available the required securities in the pool accounts with the depository participants in case of dematerialised securities.

(c) Members are required to open accounts with depository participants of both the depositories, NSDL and CDSL. Delivering members are required to deliver all documents to the clearing corporation (in case of physical settlement) between 9:30 a.m. and 10:30 a.m. on the settlement day. Receiving members are allotted specific time slots on settlement day to collect the documents from the clearing corporation at Mumbai. In case of dematerialised settlement, the members receive their obligation by 2.30 pm on T + 1 day. The members need to arrange for the securities as per their obligations and give instructions by 10.30 am on the pay-in day.

(d) In case of NSDL, the members need to give instructions to move the securities to the settlement account of NSCCL, whereas in case of CDSL pay-in is done based on settlement ID through in which members are required to provide separate balances for each settlement.

(e) The members need to ensure that the settlement number and type are correctly entered to avoid any defaults.

(f) Pursuant to SEBI directive*, NSCCL has introduced a settlement system for direct delivery of securities to the investors accounts with effect from April 2, 2001. This facility is known as Direct Payout to Investors which is explained as follows.

**vide its circular SMDRP/Policy/Cir-05/2001 dated February 1, 2002*

Direct Payout to Investors

NSCCL has introduced the facility of direct payout (i.e. direct delivery of securities) to clients' account on both the depositories. It ascertains from each clearing member, the beneficiary account details of their respective clients who are due to receive pay out of securities. Based on the information received from members, the

clearing corporation sends payout instructions to the depositories, so that the client receives the pay out of securities directly to their accounts on the pay-out day. The client receives payout to the extent of instructions received from the respective clearing members. To the extent of instruction not received, the securities are credited to the CM pool account of the member. Following are the salient features of 'Direct Pay-out' to Investors

(a) Clearing members are required to provide a file to NSCCL for effecting pay out to investors' accounts for a particular settlement type, settlement number and delivery type. The file is to be provided as per the structure specified by NSCCL.

(b) The time limit for submission of files is up to 9.30.am on the pay out day

(c) The files are uploaded by NSCCL in its system and returned with the indication of the success/rejection of the file and the records. This is purely a validation of the correctness of the file and record formats.

(d) Clearing members should provide details of beneficiary account of the clients of the trading members in any one of the depositories.

(e) Credit to the accounts of various constituents (i.e. client account and CM Pool / CM Clearing account) would be in the same order as specified by the clearing member in the file given to NSCCL.

(f) If for any client account record, the quantity requested for direct payout is more than the balance available for pay out to the clearing member in that depository, the quantity available in that depository is directly credited to members settlement account in that depository. If the member receives entire shares in NSDL the same will be transferred to members pool account in NSDL.

(g) In the following situations, the pay-out is credited to CM Pool / Clearing account of the clearing members:

- Where the clearing members fail to provide the details of the beneficiary account or where the credit to the beneficiary accounts of the clients fail, or any account whatsoever.
- The remaining quantity received from other depository as payout is credited to the CM Pool / Clearing account of the clearing member with the respective depositories

(h) If the member's client has not paid the dues to the member for the said securities or for any other reason, the member has valid justification not to release the payout of a client direct in such a situation the member may not be giving the beneficiary account details of such clients in the file. In case the investor has paid the dues for delivery of securities and there is no valid justification for not releasing pay-out directly to the client, the member has to provide the details of its client's beneficiary account so that direct credit can be given to the client.

Problems pertaining to Securities Settlement

Broadly, there exist three types of settlement problems pertaining to securities settlement:

(a) **Short Deliveries:** A short delivery/failed delivery takes place when a broker, a custodian or the clearing corporation delivers fewer securities than what were contracted for either to another broker, a custodian or the clearing corporation. On the securities pay- in day, clearing member communicate to the clearing corporation about the securities that he will be able to deliver and those securities which

he will not be able to deliver.

Also informs an amount equivalent to the securities not delivered by him valued at the valuation price (the closing price on the day previous to the day of valuation). This is called valuation debit. A valuation debit is also conducted for bad delivery by clearing members. This problem can arise in case of both physical and dematerialized settlement. (Valuation debit is explained in the later section)

(b) **Bad Deliveries:** Bad deliveries (deliveries which are prima facie defective) are required to be reported to the clearing corporation within two days from the receipt of documents. The delivering member is required to rectify these within two days. Un-rectified bad deliveries are assigned to auction on the next day. This problem can arise only in case of physical settlement.

(c) **Company Objections:** Company objections arise when documents for securities transfer are returned due to signature mismatch or for any other reason. The original selling CM is normally responsible for rectifying/replacing defective documents to the receiving CM as per pre-notified schedule. The CM on whom company objection is lodged has an opportunity to withdraw the objection if the objection is not valid or the documents are incomplete (i.e. not as required under Guideline No.100 or 109 of SEBI Good/Bad delivery guidelines), within 7 days of lodging the complaint against him. If the CM is unable to rectify/replace defective documents on or before 21 days, NSCCL conducts a buying-in auction for the non-rectified part of defective document on the next auction day through the trading system of NSE. All objections, which are not bought-in, are deemed closed out on the auction day at the closing price on the auction day plus 20%. This amount is credited to the receiving member's account on the auction pay-out day.

3.6.2 What is Funds Settlement?

Currently, NSCCL (the clearing corporation) offers settlement of funds through the clearing banks appointed by it. Every clearing member is required to maintain and operate a clearing account with any one of the empanelled clearing banks at the designated clearing bank branches. NSCCL has empanelled 13 clearing banks namely Axis Bank Ltd., Bank of India, Canara Bank, Citibank N.A, HDFC Bank, Hongkong & Shanghai Banking Corporation Ltd., ICICI Bank, IDBI Bank, IndusInd Bank, Kotak Mahindra Bank, Standard Chartered Bank, State Bank of India and Union Bank of India. The clearing account is to be used exclusively for clearing & settlement operations.

Clearing Account

Every clearing member is required to maintain and operate a clearing account with any one of the empanelled clearing banks at the designated clearing bank branches. The clearing account is to be used exclusively for clearing operations i.e., for settling funds and other obligations to the clearing corporation including payments of margins and penal charges.

Clearing members are required to authorise the clearing bank to access their clearing account for debiting and crediting their accounts, reporting of balances and other information as may be required by NSCCL from time to time as per the specified format. The clearing bank will debit/ credit the clearing account of clearing members as per instructions received from the clearing corporation. A clearing member can deposit funds into this account in any form, but can withdraw funds from this account only in self-name.

Change in Clearing Bank

In case a clearing member wishes to shift a clearing account from one designated clearing bank to another, the procedure is as follows:

(a) The CM clearing member while requesting the clearing corporation for a change in the clearing bank account should either:

  (i) Furnish the no objection certificate (NOC) received by the member from the existing clearing bank for shifting of account, or

  (ii) In case no response was received by the clearing member from the existing clearing bank in respect of the NOC request even after a minimum waiting period of a fortnight, a declaration to the above effect along with an acknowledged copy of the NOC request made by the member to the existing clearing bank.

(b) The clearing corporation would thereon issue a letter of introduction to the other designated clearing bank.

(c) On opening the account with the other designated clearing bank, the clearing member should submit to the clearing corporation, the account particulars issued by the bank and also the acknowledged copy of the letter issued by the clearing member to the clearing bank.

(d) The clearing corporation should thereon communicate the date from which the new clearing account will be operational and also the date after which the existing clearing account may be closed by the clearing member.

Settlement of Funds

(a) Members are informed of their fund's obligation for various settlements through the daily clearing data download. The daily funds statement gives date-wise details of each debit/ credit transaction in the member's clearing account whereas the summary statement summarises the same information for a quick reference.

(b) The member account may be debited for various types of transactions on a daily basis.

(c) The member is required to ensure that adequate funds are available in the clearing account towards all obligations, on the scheduled date and time. The member can refer to his various obligation statements and provide for funds accordingly.

(d) To ensure timely fulfillment of funds obligations, members may avail of the facility of standing instructions to transfer the requisite amount from some other account to the clearing account or a temporary overdraft facility from the bank. In case the member has availed such a facility, the member may furnish details of his obligation to the bank to ensure timely transfer of funds towards the same to avoid inconvenience.

(e) The member with a funds pay-in obligation is required to have clear funds in his account on or before 11.00 a.m. on the scheduled pay-in day.

(f) The payout of funds is credited to the clearing account of the members on or after 1.30 p.m. on the scheduled payout day.

Funds shortages

In case there is a funds shortage of a particular specific value, trading is not permitted and securities payout is withheld as per the norms in place from time to time.

Penal Charges

Penalties are charged to members for:

(a) Failure to fulfill their funds obligations

(b) Failure to fulfill their securities deliverable obligations

(c) Margin Shortages

(d) Security Deposit Shortages

(e) Other violations in respect of client code modifications, non-confirmation of custodial trades, company objections reported against the members' etc.

3.7 How are Shortages handled?

On the securities pay-in day, NSCCL identifies short deliveries and the respective clearing member is debited by an amount equivalent to the securities not delivered by him and valued at a valuation price. This is called a valuation debit. A valuation debit is also conducted for bad delivery by clearing members.

NSCCL conducts a buying-in auction for security shortages on the day after the pay-out day through the NSE trading system. If the buy-in auction price is more than the valuation price, the member is required to make good the difference.

3.7.1 What are Valuation Prices?

Prices at which valuation debits are conducted called Valuation Prices and are calculated as below:

(i) Valuation Price for failure to deliver for Regular Market, and Limited Physical Market Deals: The valuation price for securities which were not delivered on the settlement

day for securities, is the closing price of such securities, on the immediate trading day preceding the pay-in day for the securities.

(ii) Valuation Price for Bad Delivery for Regular Market and the Limited Physical Market Deals: The valuation price for securities which constitute bad deliveries, is the closing price of such securities, on the immediate trading day preceding the bad delivery rectification day for the securities.

3.7.2 What are Close-out Procedures for various markets?

All shortages not bought-in are deemed closed out at the highest price between the first day of the trading period till the day of squaring off or closing price on the auction day plus 10%/20% (as the case may be). This amount is credited to the receiving member's account on the auction pay-out day.

The close out procedure is done in the following manner for different markets and varies from case to case.

- **For Regular Market**

  (a) In the case of failure to give delivery: At the highest price prevailing in the NSE from the first day of the relevant trading period till the day of closing out or 20% above the closing price on the auction day, whichever is higher. In cases of securities having corporate actions all cases of short delivery of cum transactions which cannot be auctioned on cum basis or where the cum basis auction pay out is after the book closure/record date, would be compulsory closed out. For compulsory close out, the following formula is applicable:

  (i) Higher of 10% above the closing price of the security in Normal Market on the auction day

  (ii) The highest traded price from first trading day of the settlement till the auction day

  (b) In the case of non-rectification/replacement for bad delivery: At the highest price prevailing in the NSE from the first day of the relevant trading period till the day of the closing out or 20% above the official closing price on the auction day, whichever is higher.

  (c) In the case of non-rectification/replacement for objection cases: At 20% above the official closing price on the auction day.

- **For Limited Physical Market Deals**

  (a) In the case of failure to give delivery: At 20% over the actual trade price
  (b) In the case of non-rectification/replacement for bad delivery: At 10% over the actual trade price
  (c) In the case of non-rectification/replacement for objection cases: At 20% above the official closing price in regular market on the auction day.

- **Auction Market**

  (a) In the case of auction non delivery: When the auction seller fails to deliver in part or full-on auction pay-in day, the deal is squared up at the highest price prevailing in the NSE from the first day of the relevant trading period till the day of closing out or 20% over the official closing price on the close out day whichever is higher and is charged to the auction seller unless otherwise specified.
  (b) In the case of an auction bad delivery: An auction delivery reported as bad delivery is squared up at the highest price prevailing in the NSE from the first day of the relevant trading period till the day of closing out or 10% over the official closing price on the close out day, whichever is higher and will be charged to the auction seller unless otherwise specified.

- **Rectified/Replaced bad deliveries reported as bad delivery (Rebad delivery)**

  (a) **For Regular Market Deals:** At the highest price prevailing in the NSE from the first day of the relevant trading period till the day of the closing out or 10% above the official closing price on the auction day whichever is higher.
  (b) **For Limited Physical Deals:** Rectified / replaced shares reported as bad delivery (Rebad delivery) is squared up at 10% over the actual trade price.

- **Company objection cases reported as bad delivery**

  (a) Rectified /replaced company objection reported as bad delivery is squared up at 10% above the official closing price on the auction day.

- **Close out price for deleted security:**

  (a) Security for which trading has been discontinued on the Exchange (hereinafter referred to as deleted security), close out shall be the last 26 weeks average trade price on the exchange with a close out mark up of 20%.

- **Deleted security on account of payment of additional call money**

  (a) In the case of securities for which trading has been discontinued on the Exchange on account of payment of additional call money (deleted security), the security where the respective call money has been paid (new security) will be considered to arrive at the closing price.

  (b) Company objections received in the 'deleted security' will be required to be reported in the 'new security' symbol / series. In case the 'new security' is not available for the reason of such security not being introduced for trading on the Exchange/trading being discontinued on the Exchange, company objections will be required to be reported in the 'deleted security' and closing price for such deleted security will be at 20 % over the official closing price on the last traded day of the 'deleted security' on the Exchange.

- **Deleted security on account of payment of redemption**

  (a) In the case of securities for which trading has been discontinued on the Exchange on account of redemption (deleted security), the security (with the new face value after redemption) introduced for trading by the Exchange (new security) will be considered to arrive at the closing price.

  (b) Company objections received in the 'deleted security' will be required to be reported in the new security symbol / series and members will be entitled to claim redemption amount as corporate benefit.

  (c) In case the 'new security' is not available for the reason of such security not being introduced for trading on the Exchange / trading being discontinued on the Exchange on account of full redemption, company objections will be required to be reported in the 'deleted security' and closing price for such deleted security will be at 20% over the official closing price on the last traded day of the 'deleted security' on the Exchange.

- **Deleted security on account of merger / amalgamation / hive off / scheme of restructuring**

  (a) In the case of securities for which trading has been discontinued on the Exchange on account of merger / amalgamation/ scheme of restructuring ('deleted security'), the security with which the deleted security is merged / amalgamated / hived off / Restructured into ('new security') will be considered to arrive at the closing price. Closing price for such 'deleted security' will be the official closing price of the new security on the auction day prevalent on the Exchange. In case where the

price of the 'new security' is not available for the reason of such security not being traded on the Exchange, the closing price for such deleted security will be at 20% over the official closing price on the last traded day of 'deleted security' on the Exchange. In case, where more than one security ('additional securities') is being given by the company in lieu of the 'deleted security', the claim of company objection lodged for such 'deleted security' shall be settled as follows:

a. If such 'additional securities' are traded on the Exchange, in the ratio in which they have been issued by the company.

b. If any one or more of these 'additional securities' are not traded on any Stock Exchange, no claim shall arise, for such security not traded.

c. If any one or more of these 'additional securities' are not traded on the Exchange but traded on some other Stock Exchanges, the relevant closing price of such securities shall be the closing price on the Regional Exchange, to be notified by NSCCL.

- **Close out price for bonds**

(a) In case of failure to give delivery, non-rectification/replacement of bad delivery, rectified/replaced bad delivery subsequently reported as re-bad, auction non- delivery, and auction delivery reported as bad delivery, closing out price will be the highest rate prevailing on the Exchange from the first day of the relevant trading period till the day of closing out or 5% over the official closing price on the auction day, whichever is higher.

(b) In case of non-rectification / replacement of company objection and rectified/ replaced company objections reported as bad delivery, closing price will be 5% over the official closing price on the auction day.

3.8 What are the Risks in Settlement?

The following two kinds of risks are inherent in a settlement system:

(a) **Counterparty Risk:** This arises if parties do not discharge their obligations fully when due or at any time thereafter. This has two components, namely replacement cost risk prior to settlement and principal risk during settlement.

a. The replacement cost risk arises from the failure of one of the parties to transaction.

b. While the non-defaulting party tries to replace the original transaction at current prices, he loses the profit that has accrued on the transaction between the date of original transaction and date of replacement transaction. The seller/ buyer of the security loses this unrealised profit if the current price is below/ above the transaction price. Both parties encounter this risk as prices are uncertain. It has been reduced by reducing time gap between transaction and settlement and by legally binding netting systems.

c. The principal risk arises if a party discharges his obligations but the counterparty defaults.

The seller/buyer of the security suffers this risk when he delivers/ makes payment, but does not receive payment/delivery. This risk can be eliminated by delivery vs. payment mechanism which ensures delivery only against payment. This has been reduced by having a central counterparty (NSCCL) which becomes the buyer to every seller and the seller to every buyer. A variant of counterparty risk is liquidity risk which arises if one of the parties to transaction does not settle on the settlement date, but later. The seller/buyer who does not receive payment/delivery when due, may have to borrow funds/securities to complete his payment/delivery obligations. Another variant is the third-party risk which arises if the parties to trade are permitted or required to use the services of a third party which fails to perform. For example, the failure of a clearing bank which helps in payment can disrupt settlement. This risk is reduced by allowing parties to have accounts with multiple banks. Similarly, the users of custodial services face risk if the concerned custodian becomes insolvent, acts negligently, etc.

(b) **System Risk:** This comprises of operational, legal and systemic risks. The operational risk arises from possible operational failures such as errors, fraud, outages etc. The legal risk arises if the laws or regulations do not support enforcement of settlement obligations or are uncertain. Systemic risk arises when failure of one of the parties to discharge his obligations leads to failure by other parties. The domino effect of successive failures can cause a failure of the settlement system.

These risks have been contained by enforcement of an elaborate margining and capital adequacy standards to secure market integrity, settlement guarantee funds to provide counter- party guarantee, legal backing for settlement activities and business continuity plan, etc.

3.9 What is Risk Management in Settlement?

A sound risk management system is integral to/pre-requisite for an efficient clearing and settlement system. The National Securities Clearing Corporation Ltd. (NSCCL), a wholly owned subsidiary of NSE, was incorporated in August 1995 and commenced clearing operations in April 1996. NSCCL ensures that trading members' obligations are commensurate with their net worth and has put in place a comprehensive risk management system which is constantly monitored and upgraded to pre-empt market failures. The risk containment measures are discussed below:

3.9.1 Capital Adequacy Requirements

The trading members are required to provide liquid assets which adequately cover various margins & minimum capital requirements. Liquid assets of the member include their initial membership deposits including the security deposits. Members may provide additional collateral deposit towards liquid assets, over and above their minimum membership deposit requirements (see table 3.4).

The acceptable forms of capital towards liquid assets and the applicable haircuts are listed below:

(a) **Cash Equivalents:** Cash, bank fixed deposits from approved banks, bank guarantees from approved banks and government securities with 10% haircut, units of liquid mutual funds or government securities mutual funds with 10% haircut.

(b) **Other Liquid assets:**

a. Liquid (Group I) Equity Shares in demat form, as specified by NSCCL from time to time deposited with approved custodians. Haircuts applied are equivalent to the VaR margin for the respective securities.

b. Mutual fund units other than those listed under cash equivalents decided by NSCCL from time to time. Haircut equivalent to the VaR margin for the units computed using the traded price if available, or else, using the NAV of the unit treating it as a liquid security.

c. Corporate bonds in demat form as decided by NSCCL from time to time with haircuts as specified by NSCCL

3.9.2 What are Margins?

Margins form a key part of the risk management system. In the stock markets there is always an uncertainty in the movement of share prices. This uncertainty leads to risk which is addressed by margining system of stock markets. Let us understand the concept of margins with the help of a following example.

Example: Suppose an investor purchases 1000 shares of 'xyz' company at Rs.100/- on January 1, 2008. Investor has to give the purchase amount of Rs.1,00,000/- (1000 x 100) to his broker on or before January 2, 2008. Broker, in turn, has to give this money to stock exchange on January 3, 2008. There is always a small chance that the investor may not be able to bring the required money by required date. As an advance for buying the shares, investor is required to pay a portion of the total amount of Rs.1,00,000/- to the broker at the time of placing the buy order. Stock exchange in turn collects similar amount from the broker upon execution of the order. This initial token payment is called margin. It is important to remember that for every buyer there is a seller and if the buyer does not bring the money, seller may not get his / her money and vice versa. Therefore, margin is levied on the seller also to ensure that he/ she gives the 100 shares sold to the broker who in turn gives it to the stock exchange.

In the above example, assume that margin was 15%. That is investor has to give Rs.15,000/- (15% of Rs.1,00,000/-) to the broker before buying. Now suppose that investor bought the shares at 11 am on January 1, 2008. Assume that by the end of the day, price of the share falls by Rs.25/-. That is total value of the shares has come down to Rs.75,000/-. That is buyer has suffered a notional loss of Rs.25,000/-. In our example buyer has paid Rs.15,000/- as margin but the notional loss, because of fall in price, is Rs.25,000/-. That is notional loss is more than the margin given.

In such a situation, the buyer may not want to pay Rs.1,00,000/- for the shares whose value has come down to Rs.75,000/-. Similarly, if the price has gone up by Rs.25/-, the seller may not want to give the shares at Rs.1,00,000/-. To ensure that both buyers and sellers fulfil their obligations irrespective of price movements, notional losses are also need to be collected.

Prices of shares keep on moving every day. Margins ensure that buyers bring money and sellers bring shares to complete their obligations even though the prices have moved down or up.

Imposition of Margins

For imposition of margins, the stocks are categorized on basis of their trading frequency and impact cost* (see table 3.5). The criteria for categorization of stocks for imposition of margins is mentioned below:

(a) The securities are classified into three groups based on their liquidity. The stocks which have traded at least 80% of the days for the previous six months constitute Group I (Liquid Securities) and Group II (Less Liquid Securities). Out of the scrips identified above, the scrips having mean impact cost of less than or equal to 1% are categorized under Group I and the scrips where the impact cost is more than 1, are categorized under Group II. The remaining stocks are classified into Group III (Illiquid Securities).

**Impact cost represents the cost of executing a transaction in a given stock, for a specific predefined order size, at any given point of time.*

(b) The impact cost is calculated on the 15th of each month on a rolling basis considering the order book snapshots of the previous six months. On the basis of the impact cost so calculated, the scrips are moved from one group to another group from the 1st of the next month.

Table 3.6: Imposition of Margins

Group	Trading frequency (over the previous six months*)	Impact Cost (over the previous six months*)
Liquid Securities (Group I)	At least 80 % of the days	Less than or equal to 1 %
Less Liquid Securities (Group II)	At least 80 % of the days	More than 1 %.
Illiquid Securities (Group III)	Less than 80 % of the days	N/A

* *For securities that have been listed for less than 6 months, the trading frequency and the impact cost is computed using the history of the scrip.*

What is the process of Categorisation of Newly Listed Securities?

(a) For the first month and till the time of monthly review a newly listed security is categorised in that group where the market capitalization of the newly listed security exceeds or equals the market capitalization of 80% of the securities in that particular group. Subsequently, after one month, whenever the next monthly review is carried out, the actual trading frequency and impact cost of the security is computed, to determine the liquidity categorization of the security.

(b) In case any corporate action results in a change in ISIN, then the securities bearing the new ISIN is treated as newly listed security for group categorization.

Types of Margins

Daily margins payable by the trading members in the Cash market consists of the following:

(a) Value at Risk (VaR) margin
(b) Mark to Market Margin
(c) Extreme Loss Margin

The margins are computed at client level. A member entering an order, needs to enter the client code. Based on this information, margin is computed at the client level, which will be payable by the trading members on upfront basis. Let us see in details what is meant by these margins.

Value at Risk (VaR) Margin

VaR is a single number, which encapsulates whole information about the risk in a portfolio. It measures potential loss from an unlikely adverse event in a normal market environment. It involves using historical data on market prices and rates, the current portfolio positions, and models (e.g., option models, bond models) for pricing those positions. These inputs are then combined in different ways, depending on the method, to derive an estimate of a particular percentile of the loss distribution, typically the 99th percentile loss.

Computation of VaR Margin: VaR Margin is a margin intended to cover the largest loss that can be encountered on 99% of the days (99% Value at Risk). For liquid securities, the margin covers one-day losses while for illiquid securities; it covers three-day losses so as to allow the clearing corporation to liquidate the position over three days. This leads to a scaling factor of square root of three for illiquid securities. For liquid securities, the VaR margins are based only on the volatility of the security while for other securities, the volatility of the market index is also used in the computation (see table 4.6).

Some Definitions: Computation of the VaR margin requires the following definitions:

(a) **Security sigma:** It means the volatility of the security computed as at the end of the previous trading day. The computation uses the exponentially weighted moving average method applied to daily returns in the same manner as in the derivatives market.

(b) **Security VaR:** It means the higher of 7.5% or 3.5 security sigmas.

(c) **Index sigma:** It means the daily volatility of the market index (CNX Nifty or BSE Sensex) computed as at the end of the previous trading day. The computation uses the exponentially weighted moving average method applied to daily returns in the same manner as in the derivatives market.

(d) **Index VaR:** It means the higher of 5% or 3 index sigmas. The higher of the Sensex VaR or Nifty VaR would be used for this purpose.

Table 3.7: VaR Margins for different groups of Securities

Liquidity Categorization	One-Day VaR	Scaling factor for illiquidity	VaR Margin
Liquid Securities (Group I)	Security VaR	1.00	Security VaR
Less Liquid Securities (Group II)	Higher of Security VaR and three times Index VaR	1.73 (Square root of 3.00)	Higher of 1.73 times Security VaR and 5.20 times Index VaR
Illiquid Securities (Group III)	Five times Index VaR	1.73 (Square root of 3.00)	8.66 times Index VaR

All securities are classified into three groups for the purpose of VaR margin as discussed above. For the securities listed in Group I, scrip wise daily volatility calculated using the exponentially weighted moving average methodology applied to daily returns. The scrip wise daily VaR would be 3.5 times the volatility so calculated subject to a minimum of 7.5%. For the securities listed in Group II, the VaR margin is higher of scrip VaR (3.5 sigma) or three times the index VaR, and it shall be scaled up by root 3 (^). For the securities listed in Group III, the VaR margin would be equal to five times the index VaR and scaled up by root 3.

Upfront margin rates (VaR margin + Extreme Loss Margin) applicable for all securities in Trade for Trade-Surveillance (TFTS) shall be 100%.

VaR margin rates for a security constitutes the following:

(a) VaR margin rate for a security constitutes the following: Value at Risk (VaR) based margin, which is arrived at, based on the methods stated above. The index VaR, for the purpose, would be the higher of the daily Index VaR based on CNX NIFTY or BSE SENSEX. The index VaR would be subject to a minimum of 5%.

(b) Security Specific Margin, NSCCL may stipulate security specific margins for the securities from time to time.

The VaR margin rate computed, as mentioned above, will be charged on the net outstanding position (buy value-sell) of the respective clients on the respective securities across all open settlements. There would be no netting off of positions across different settlements. The net position at a client level for a member are arrived at and thereafter, it is grossed across all the clients including proprietary position to arrive at the gross open position.

For example, in case of a member, if client A has a buy position of 1000 in a security and client B has a sell position of 1000 in the same security, the net position of the member in the security would be taken as 2000. The buy position of client A and sell position of client B in the same security would not be netted. It would be summed up to arrive at the member's open position for the purpose of margin calculation.

Collection of VaR Margin: The VaR margin is collected on an upfront basis by adjusting against the total liquid assets of the member at the time of trade. The VaR margin is collected on the gross open position of the member. The gross open position for this purpose would mean the gross of all net positions across all the clients of a member including its proprietary position. For this purpose, there would be no netting of positions across different settlements.

Upfront margin rates (VaR margin + Extreme Loss Margin) applicable for all securities in Trade for Trade-Surveillance (TFTS) shall be 100 %. The Intra-day VAR files is generated based on the prices at 11.00 a.m., 12.30 p.m., 2.00 p.m., and 3.30 p.m. everyday. Such intra-day VAR files are used for margining of intra-day member positions. In addition to the above, a VAR file at end of day and begin of day is provided and the same is applicable on the positions for next trading day.

Mark-to-Market (MTM) Margin

Mark to market loss is calculated by marking each transaction in security to the closing price of the security at the end of trading. In case the security has not been traded on a particular day, the latest available closing price at the NSE is to be considered as the closing price. In case the net outstanding position in any security is nil, the difference between the buy and sell values is considered as notional loss for the purpose of calculating the mark to market margin payable.

The mark to market margin (MTM) is collected from the member before the start of the trading of the next day. The MTM margin is collected/adjusted from/against the cash/cash equivalent component of the liquid net worth deposited with the Exchange.

The MTM margin is collected on the gross open position of the member. The gross open position means the gross of all net positions across all the clients of a member including its proprietary position. For this purpose, the position of a client would be netted across its various securities and the positions of all the clients of a broker would be grossed.

There would be no netting off of the positions and setoff against MTM profits across two rolling settlements i.e. T day and T-1 day. However, for computation of MTM profits/losses for the day, netting or setoff against MTM profits would be permitted.

In case of Trade for Trade Segment (TFT segment) each trade is marked to market based on the closing price of that security. The MTM margin so collected is released on completion of pay-in of the settlement.

Let us understand the MTM computation with the help of the following example:

Client	Security	T-1 day	T day	Total profit/ loss of Client	MTM for broker
Client A	Security X	800	300		
	Security Y	-500	-1200		
	Total	300	-900	-900	
Client B	Security Z	700	-400		
	Security W	-1000	800		
	Total	-300	400	-300	
Client C	Security X	1000	500		
	Security Z	-1500	-800		
	Total	-500	-300	-800	
Client D	Security Y	700	-200		
	Security R	-300	800		
	Total	400	600	1000	
Member					-2000

For a Client A, his MTM profit/ loss would be calculated separately for his positions on T-1 and T-day (two different rolling settlements). For the same day positions of the client, his losses in some securities can be set off/netted against profits of some other securities. Thus, we would arrive at the MTM loss/profit figures of the two different days T and T-1. These two figures cannot be netted. Any loss will have to be collected

and same will not be set-off against profit arising out of positions of the other day.

Thus, as stated above MTM profits / losses would be computed for each of the clients; Client A, Client B, Client C, etc. As regards collection of margins from the broker, the MTM would be grossed across all the clients i.e. no setoff of loss of one client with the profit of another client. In other words, only the losses will be added to give the total MTM loss that the broker has to deposit with the exchange. In this example, the broker has to deposit MTM Margin of Rs. 2000.

Extreme Loss Margin

The Extreme Loss Margin for any security is higher of:

(a) 5%, or

(b) 1.5 times the standard deviation of daily logarithmic returns of the security price in the last six months. This computation is done at the end of each month by taking the price data on a rolling basis for the past six months and the resulting value is applicable for the next month.

The Extreme Loss Margin is collected/ adjusted against the total liquid assets of the member on a real time basis.

The Extreme Loss Margin is collected on the gross open position of the member. The gross open position for this purpose would mean the gross of all net positions across all the clients of a member including its proprietary position.

There would be no netting off of positions across different settlements. The Extreme Loss Margin collected is released on completion of pay-in of the settlement.

Cross Margining

An off-setting position for a client in different segments has lower risk as loss on one position is off-set by profit in the other position. An example for an off-setting position can be a buy position of 100 in security “A” in capital market and short position of 100 in stock futures of security “A” in derivative segment. As the risk of the off-setting positions is lower, the margin requirement for the combined positions has to be lower which is considered as cross margining.

The benefit of cross margining is provided on the following off setting positions:

(a) Index futures and constituent stock futures for same expiry in F&O segment

(b) Index futures and constituent stock positions in Cash segment

(c) Stock futures in F&O segment and stock positions in Cash segment

The offsetting positions in respect of (a) and (b) above are computed considering the weightage of that security in the index. A file is provided by NSE on its website www.nseindia.com, providing minimum number of units of stock/stock future required to offset position in index future. The number of units is changed only in case of change in share capital of the constituent security due to corporate action or issue of additional share capital or change in the constituents of the index.

The cross-margining benefits are computed and provided on an on-line real time basis in respect of all existing and confirmed positions. The offsetting positions are margined only to the extent of 25% of all applicable margins (all upfront margins, i.e., initial margins and Exposure margins).

Margin Shortfall

In case of any shortfall in margin:

(a) The members are not permitted to trade with immediate effect.
(b) Penalty for margin violation

Penalty applicable for margin violation is levied on a monthly basis based on slabs as mentioned below in Table 3.8:

Table 3.8: Penalty for Margin Shortfall

Instances of Disablement	Penalty to be levied
1st instance 2nd to 5th instance of disablement	0.07% per day 0.07% per day +Rs.5000/- per instance from 2nd to 5th instance
6th to 10th instance of disablement	0.07% per day + Rs. 20000 (for 2nd to 5th instance) +Rs.10000/- per instance from 6th to 10th instance
11th instance onwards	0.07% per day +Rs. 70,000/- (for 2nd to 10th instance) +Rs.10000/- per instance from 11th instance onwards. Additionally, the member will be referred to the Disciplinary Action Committee for suitable action

Instances as mentioned above refer to all disablements during market hours in a calendar month. The penal charge of 0.07% per day is applicable on all disablements due to margin violation anytime during the day.

Margins for institutional deals

As specified by SEBI*, all institutional transactions should be margined in the capital market segment from T+1 day subsequent to confirmation of the transactions by the custodians. For this purpose, institutional investors include:

(a) Foreign Institutional Investors (FIIs) registered with SEBI.
(b) Mutual Funds (MFs) registered with SEBI.
(c) Public Financial Institutions as defined under Section 4A of the Companies Act, 1956.
(d) Banks, i.e., a banking company as defined under Section 5(1)(c) of the Banking Regulations Act, 1949.
(e) Insurance companies registered with IRDA.
(f) Pension Funds regulated by Pension Fund Regulatory and Development Authority (PFRDA).

**SEBI Circular No. MRD/DoP/SE/Cir-06/2008, March 19, 2008*

Levy of margin for institutional deals

(a) Institutional transactions are identified by the use of the participant code at the time of order entry.

(b) Transactions entered into on behalf of custodial participants i.e. carrying custodial participant code is considered as institutional deals unless not confirmed by the respective custodians in which case the transactions are considered as a normal transactions and all applicable margins are levied on the members.

(c) Members may also enter "INST" code in the custodial participant code at the time of entering orders on behalf of the institutional clients.

(d) Members are required to allocate the INST trades only to the above categories.

(e) In respect of institutional transactions confirmed by the custodians the margins are levied on the custodians.

(f) In respect of institutional transactions rejected/not accepted by the custodians the margins is levied on the members who have executed the transactions.

(g) The margins are computed and levied at a client (Custodial Participant code) level in respect of institutional transactions and collected from the custodians/members.

Retail Professional Clearing Member

In case of transactions which are to be settled by Retail Professional Clearing Members (PCM), all the trades with PCM code are included in the trading member's positions till it is confirmed by the PCM. Margins are collected from respective trading members until confirmation of trades by PCM. On confirmation of trades by PCM, such trades are reduced from the positions of trading member and included in the positions of PCM. The PCM is then liable to pay margins on the same.

Capping of Margins

In case of a buy transaction, the VaR margins, Extreme loss margins and mark to market losses together should not exceed the purchase value of the transaction. In case of a sale transaction, the VaR margins and Extreme loss margins together should not exceed the sale value of the transaction and mark to market losses should also be levied.

Exemption upon early Pay-in of Securities

In cases where early pay-in of securities is made prior to the securities pay-in, such positions for which early pay-in (EPI) of securities is made is exempt from margins. The EPI of securities is allocated to clients having net deliverable position, on a random basis unless specific client details are provided by the member/ custodian. Member/Custodians, however should ensure that appropriate early pay-in benefit of margin is passed on to the relevant clients. Additionally, member/custodian can specify the clients to whom the early pay-in may be allocated.

Exemption upon early Pay-in of Funds

In cases where early pay-in of funds is made prior to the funds pay-in, such positions for which early pay-in (EPI) of funds is made are exempt from margins based on the client details provided by the member/ custodian. Early pay-in of funds specified by the member/ custodians for a specific client and for a settlement

is allocated against the securities in the descending order of the net buy value of outstanding position of the client.

3.9.3 How is online exposure monitored?

NSCCL has put in place an on-line monitoring and surveillance system whereby exposure of the members is monitored on a real time basis. A system of alerts has been built in so that both the member and NSCCL are alerted as per pre-set levels (reaching 70%, 85%, 90%, 95% and 100%) when the members approach their allowable limits. The system enables NSSCL to further check the micro-details of members' positions, if required and take proactive action.

The on-line surveillance mechanism also generates various alerts/reports on any price/volume movement of securities not in line with past trends/patterns. For this purpose, the exchange maintains various databases to generate alerts. Alerts are scrutinised and if necessary, taken up for follow up action. Open positions of securities are also analysed. Besides this, rumours in the print media are tracked and where they are price sensitive, companies are contacted for verification. Replies received are informed to the members and the public.

3.9.4 What is Off-line Monitoring?

Off-line surveillance activity consists of inspections and investigations. As per regulatory requirement, trading members are to be inspected in order to verify the level of compliance with various rules, byelaws and regulations of the Exchange. The inspection verifies if investor interests are being compromised in the conduct of business by the members.

3.9.5 How are Index-based Market-wide Circuit Breakers/ Price Bands for Securities imposed?

An index-based market-wide circuit breaker system applies at three stages of the index movement either way at 10%, 15% and 20%. These circuit breakers bring about a coordinated trading halt in trading on all equity and equity derivatives markets across the country. The breakers are triggered by movements in either Nifty 50 or Sensex, whichever is breached earlier. Details of circuit breakers are given in Chapter 3.

3.9.6 What is Settlement Guarantee Mechanism of the Exchange?

A Settlement Guarantee Fund provides the cushion for any residual risk. In the event of failure of a trading member to meet settlement obligations or committing default, the Fund is utilized to the extent required for successful completion of the settlement. This has eliminated counter party risk of trading on the Exchange. The market has now full confidence that settlements will take place in time and will be completed irrespective of possible default by isolated trading members.

The Settlement Guarantee Fund is an important element in facilitating the settlement process. The Fund operates like a self-insurance mechanism and is funded through the contributions made by NSCCL, NSE, penalty amounts, fines etc. recovered by NSCCL.

3.10 How are Securities identified through International Securities Identification Number?

SEBI being the National Numbering Agency for India has permitted NSDL to allot International Securities Identification Number (ISIN) for demat shares. While allotting ISINs, NSDL ensures that:

(a) The ISINs allotted by NSDL does not at any point of time breach the uniqueness of ISIN of physical form for the same security.
(b) ISIN for a security is allotted only when the security is admitted to NSDL or on receipt of request for ISIN from CDSL.
(c) The numbering system is simple.
(d) The numbering system of ISIN is in compliance with the structure of ISIN adopted by SEBI.

Numbering System of ISIN: The numbering structure for securities in NSDL is of 12-digit alpha numeric string. The first two characters represent country code i.e., IN (in accordance with ISO 3166). The third character represents the Issuer Type as detailed in Table 3.9.

Table 3.9: Issuers Type

Issuer Type	Code allotted
Central Government	A
State Government	B
Municipal Corporation	C
Union Territories	D
Company, Statutory Corporation, Banking Company	E
Mutual Funds including UTI	F

Note: ISINs for Government Securities (Gsec) i.e., loans raised by Central and State Government are allotted by Reserve Bank of India (RBI).

The list may be expanded as per need. Maximum issuer types can be 35 (A to Z and 0 to 8. The partly paid-up shares are identified by 9). The next 4 characters (fourth to seventh character) represent company identity of which first 3 characters are numeric and fourth character is alpha character. The numbering begins with '001A' and continues till '999A' and proceeds to '001B'. The next two characters (the eighth and ninth characters) represent security type for a given issuer. Both the characters are numeric. The next two characters (the tenth and eleventh characters) are serially issued for each security of the issuer entering the system. Last digit is check digit. The security types are planned which may be expanded as per the need as detailed in Table 3.10 (as follows).

Table 3.10: Security Types

Security Type	Code
Equity Shares	01
Mutual Fund	01
Convertible Preference Shares	03
Non-Convertible Preference Shares	04
Secured Debentures	07
Unsecured Debentures	08
Regular Return Bonds, Promissory Notes	09
Floating Rate Bond	10
Deep Discount Bond	11
Step Discount Bond	12
Warrants	13
Commercial Paper	14
Pass Through Certificate	15
Certificate of Deposit	16
Security Receipt	18

Box 3.1: Investor Protection Fund

Investor Protection Fund (IPF) has been set up as a trust under Bombay Public Trust Act, 1950 under the name and style of National Stock Exchange Investor Protection Fund Trust and is administered by the Trustees. The purpose of IPF is to take care of investor claims which may arise out of non-settlement of obligations by trading members. The IPF is utilized to settle claims of such investors whose trading member has been declared a defaulter or expelled by the Exchange. Further the stock exchanges have been allowed to utilize interest income earned on IPF for Investor Protection Fund for investor education, awareness and research. The maximum amount of claim payable from the IPF to the investor is Rs. 15 lakhs.

3.11 What are SEBI (Intermediaries) Regulations, 2008?

One of the main functions of SEBI is to register and regulate the functioning of various types of intermediaries and persons associated with securities market in a manner as to ensure smooth functioning of the markets and protection of interests of the investors. These intermediaries, as detailed in the SEBI Act are: stock-brokers, sub- broker, share transfer agents, bankers to an issue, trustees of trust deed, registrars to an issue, merchant bankers, underwriters, portfolio managers, investment advisers, depositories, participants, custodians of securities, foreign institutional investors, credit rating agencies, asset management companies, clearing members of a clearing corporation, trading member of a derivative segment of a stock exchange, collective investment schemes, venture capital funds, mutual funds, and any other intermediary associated

with the securities market.

SEBI had issued regulations governing the registration and regulatory framework for each of these intermediaries. However, given the fact that many requirements and obligations of most intermediaries are common, SEBI consolidated these requirements and issued the SEBI (Intermediaries) Regulations, 2008. These regulations were notified on May 26, 2009.

These regulations apply to all the intermediaries mentioned above, except foreign institutional investors, foreign venture capital investors, mutual funds, collective investment schemes and venture capital funds.

The salient features of the Regulations are as under:

(a) The SEBI Regulations put in place a comprehensive regulation which is applicable to all intermediaries. The common requirements such as grant of registration, general obligations, common code of conduct, common procedure for action in case of default and miscellaneous provisions are applicable for all intermediaries.

(b) An applicant can file application in the prescribed format along with additional information as required under the relevant regulations along with the requisite fees. The existing intermediaries may, within the prescribed time, file the disclosure in the specified form. The disclosures are required to be made public by uploading the information on the website specified by SEBI. The information of commercial confidence and private information furnished to SEBI shall be treated confidential. In the event intermediary wishes to operate in a capacity as an intermediary in a new category, such person may only file the additional shortened forms disclosing the specific requirements of the new category as per the relevant regulations.

(c) The Fit and Proper criteria have been modified to make it principle based. The common code of conduct has been specified at one place.

(d) The registration granted to intermediaries has been made permanent unless surrendered by the intermediary or suspended or cancelled in accordance with these regulations.

(e) Procedure for action in case of default and manner of suspension or cancellation of certificate has been simplified to shorten the time usually faced by the parties without compromising with the right of reasonable opportunity to be heard. Surrender of certificate has been enabled without going through lengthy procedures.

(f) While common requirements will be governed by the new regulations, the intermediary-specific requirements will continue to be as per the relevant regulations applicable to individual intermediaries. The relevant regulations will be amended to provide for the specific requirements.

3.12 What does SEBI (Prohibition of Insider Trading) Regulations, 2015 deal with?

The malpractice of 'insider trading' affects the innocent investors. In simple terms 'insider trading' means selling or buying in securities on the basis of price sensitive unpublished information of a listed corporate which if published could lead to a fall or rise in the prices of shares of the corporate.

To tackle the problem of insider trading, SEBI issued the SEBI (Insider Trading) Regulations 1992. These regulations were further made stringent through amendments in 2015 and they were notified as the SEBI

(Prohibition of Insider Trading) Regulations 2015.

The important definitions used in the regulations are:

(a) Dealing in securities means an act of subscribing, buying, selling or agreeing to subscribe, buy, sell or deal in any securities by any person either as principal or agent.

(b) Insider means any person who, is or was connected with the company or is deemed to have been connected with the company, and who is reasonably expected to have access to unpublished price sensitive information in respect of securities of a company, or who has received or has had access to such unpublished price sensitive information.

(c) A connected person means any person who:

a. is a director, as defined in the Companies Act, 2013 of a company, or is deemed to be a director of that company by virtue of that Act, or

b. Occupies the position as an officer or an employee of the company or holds a position involving a professional or business relationship between himself and the company whether temporary or permanent and who may reasonably be expected to have an access to unpublished price sensitive information in relation to that company.

(d) A person is deemed to be a connected person if such person:

a. is a company under the same management or group or any subsidiary company thereof within the meaning of the Companies Act, 2013 or sub-clause (g) of section 2 of the Monopolies and Restrictive Trade Practices Act, 1969 as the case may be; or

b. is an intermediary as specified in section 12 of SEBI Act, 1992, Investment company, Trustee Company, Asset Management Company or an employee or director thereof or an official of a stock exchange or of clearing house or corporation;

c. is a merchant banker, share transfer agent, registrar to an issue, debenture trustee, broker, portfolio manager, investment advisor, sub-broker, investment company or an employee thereof, or, is a member of the board of trustees of a mutual fund or a member of the board of directors of the asset management company of a mutual fund or is an employee thereof who have a fiduciary relationship with the company;

d. is a member of the board of directors, or an employee, of a public financial institution as defined in the Companies Act, 2013;

e. is an official or an employee of a self-regulatory organisation recognised or authorised by the Board of a regulatory body;

f. is a relative of any of the aforementioned persons;

g. is a banker of the company.

h. relative of the connected person.

(e) Price sensitive information means any information which is related directly or indirectly to a company and which if published is likely to materially affect the price of securities of a company. It includes only such information which if published is likely to materially affect the price of securities of a company. The following is deemed to be price sensitive information:

a. periodical financial results of the company;
b. intended declaration of dividends (both interim and final);
c. issue of securities or buy-back of securities;
d. any major expansion plans or execution of new projects;
e. amalgamation, mergers or takeovers;
f. disposal of the whole or substantial part of the undertaking;
g. significant changes in policies, plans or operations of the company.

(f) Unpublished information means information which is not published by the company or its agents and is not specific in nature. However, speculative reports in print or electronic media are not considered as published information.

3.12.1 What are the Prohibitions on Dealing, Communicating or Counselling?

Under this regulation, no insider should:

(a) either on his own behalf or on behalf of any other person, deal in securities of a company listed on any stock exchange when in possession of any unpublished price sensitive information;

(b) communicate, counsel or procure, directly or indirectly, any unpublished price sensitive information to any person who while in possession of such unpublished price sensitive information should not deal in securities. This is however, not applicable to any communication required in the ordinary course of business or profession or employment or under any law.

The regulations require that no company should deal in the securities of another company or associate of that other company while in possession of any unpublished price sensitive information.

3.12.2 What is Investigation?

If SEBI suspects any person of having violated the provisions of insider regulation, it may make inquiries with such person or with the stock exchanges, mutual funds, other persons associated with the securities market, intermediaries and self-regulatory organisation in the securities market to form a prima facie opinion as to whether there is any violation of insider regulations.

Where SEBI forms a prima facie opinion that it is necessary to investigate and inspect the books of accounts, either documents and records of an insider or the stock exchanges, mutual funds, other persons associated with the securities market, intermediaries and self-regulatory organisation in the securities market, it may appoint an investigating authority for the purpose.

The investigating authority has to submit its report to SEBI, after completion of investigations in accordance with the provisions of the regulations.

After considering the report, SEBI is required to communicate its findings to the suspected person and seek a reply from such person. Such suspected person is required to reply to the findings within 21 days to SEBI. After receipt of the reply, SEBI may take such measures to safeguard and protect the interest of investors, securities market and for due compliance with the insider trading regulations.

SEBI also has powers to appoint an auditor to investigate into the books of accounts or the affairs of the insider or the stock exchanges, mutual funds, other persons associated with the securities market, intermediaries and self-regulatory organisation in the securities market.

3.12.3 What are the Disclosures and Internal Procedure for Prevention of Insider Trading?

All listed companies and organisations associated with securities markets such as intermediaries, asset management company, trustees of mutual funds, self-regulatory organisations recognised by SEBI, recognised stock exchanges, clearing house or corporations, public financial institutions and professional firms such as auditors, accountancy firms, law firms, analysts, consultants, etc., assisting or advising listed companies, are required to frame a code of internal procedures and conduct as per the prescribed format provided in SEBI (Prohibition of Insider Trading) Regulations without diluting it any manner and ensure compliance of the same.

The regulations require certain disclosures to be made by directors, officers and substantial shareholders in listed companies. These are:

(a) **Initial Disclosure:**

a. Any person who holds more than 5% shares or voting rights in any listed company should disclose to the company in prescribed form, the number of shares or voting rights held by such person, on becoming such holder, within 2 working days of:

   (i) the receipt of intimation of allotment of shares; or
   (ii) the acquisition of shares or voting rights, as the case may be.

b. Any person who is a director or officer of a listed company should disclose to the company in prescribed form, the number of shares or voting rights held by such person, within 2 working days of becoming a director or officer of the company.

(b) **Continual Disclosure:**

a. Any person who holds more than 5% shares or voting rights in any listed company should disclose to the company in prescribed form the number of shares or voting rights held and change in shareholding or voting rights, even if such change results in shareholding falling below 5%, if there has been change in such holdings from the last disclosure and such change exceeds 2% of total shareholding or voting rights in the company.

b. Any person who is a director or officer of a listed company, should disclose to the company in prescribed form, the total number of shares or voting rights held and change in shareholding or voting rights, if there has been a change in such holdings from the last disclosure made and the change exceeds Rs. 5 lakh in value or 25,000 shares or 1% of total shareholding or voting rights, whichever is lower. The disclosure mentioned above should be made within 2 working days of:

   (i) the receipt of intimation of allotment of shares, or
   (ii) the acquisition or sale of shares or voting rights, as the case may be.

(c) **Disclosure by Company to Stock Exchanges:**

Every listed company, within two days of receipt, should disclose to all stock exchanges on which the company is listed, the information relating to continual and initial disclosure given above. The disclosures required under this regulation may also be made through electronic filing in accordance with the system devised by the stock exchanges. Further, the SEBI Act, which inter-alia, prescribes the penalty for insider trading (Section 15G), was amended in 2002 to increase the penalty for insider trading to Rs. 25 crore or three times the amount of profits made out of insider trading, whichever is higher.

3.13 What does SEBI (Prohibition of Fraudulent and Unfair Trading Practices relating to Securities Market) Regulations, 2003 regulate?

The SEBI (Prohibition of Fraudulent and Unfair Trade Practices relating to the Securities Market) Regulations, 2003 enable SEBI to investigate into cases of market manipulation and fraudulent and unfair trade practices. The regulations specifically prohibit market manipulation, misleading statements to induce sale or purchase of securities, unfair trade practices relating to securities. The important terms defined under the regulations are:

(a) Fraud includes any act, expression, omission or concealment committed whether in a deceitful manner or not by a person or by any other person or his agent while dealing in securities in order to induce another person with his connivance or his agent to deal in securities, whether or not there is any wrongful gain or avoidance of any loss, and should also include:

a. a knowing misrepresentation of the truth or concealment of material fact in order that another person may act to his detriment;

b. a suggestion as to a fact which is not true by one who does not believe it to be true;

c. an active concealment of a fact by one having knowledge or belief of the fact;

d. a promise made without any intention of performing it;

e. a representation made in a reckless and careless manner whether it be true or false;

f. any such act or omission as any other law specifically declares to be fraudulent;

g. deceptive behaviour by a person depriving another of informed consent or full participation;

h. a false statement made without reasonable ground for believing to be true;

i. the act of an issuer of securities giving out misinformation that affects the market price of the security, resulting in investors being effectively misled even though they did not rely on the statement itself or anything derived from it other than the market price.

The term "fraudulent" should be construed accordingly. Nothing contained in this clause is applicable to any general comments made in good faith in regard to the economic policy of the Government; the economic situation of the country; trends in the securities market; any other matter of a like nature.

(b) Dealing in Securities is defined to include an act of buying, selling or subscribing pursuant to any issue of any securities or agreeing to buy, sell or subscribe to any issue of any securities or otherwise transacting in any way in any security by any person as principal, agent or intermediary as defined

under the SEBI Act.

3.13.1 Prohibitions of Certain Dealings in Securities

The regulation provides that no person should directly or indirectly:

(a) buy, sell or otherwise deal in securities in a fraudulent manner;
(b) use or employ, in connection with issue, purchase or sale of any security listed or proposed to be listed in a recognised stock exchange, any manipulative or deceptive device or contrivance in contravention of the provisions of the Act or the rules or the regulations made thereunder;
(c) employ any device, scheme or artifice to defraud in connection with dealing in or issue of securities which are listed or proposed to be listed on a recognised stock exchange;
(d) engage in any act, practice, course of business which operates or would operate as fraud or deceit upon any person in connection with any dealing in or issue of securities which are listed or proposed to be listed on a recognised stock exchange in contravention of the act, rules and regulations.

3.13.2 What are the Prohibitions on Manipulative, Fraudulent and Unfair Trade Practices?

The Regulation provides that no person should indulge in a fraudulent or an unfair trade practice in securities. Any dealing in securities is deemed to be fraudulent or an unfair trade practice if it involves fraud and may include all or any of the following:

(a) indulging in an act which creates false or misleading appearance of trading in the securities market;
(b) dealing in a security not intended to effect transfer of beneficial ownership but intended to operate only as a device to inflate, depress or cause fluctuations in the price of such security for wrongful gain or avoidance of loss;
(c) advancing or agreeing to advance any money to any person thereby inducing any other person to offer to buy any security in any issue only with the intention of securing the minimum subscription to such issue;
(d) paying, offering or agreeing to pay or offer, directly or indirectly, to any person any money or money's worth for inducing such person for dealing in any security with the object of inflating, depressing, maintaining or causing fluctuation in the price of such security;
(e) any act or omission amounting to manipulation of the price of a security;
(f) publishing or causing to publish or reporting or causing to report by a person dealing in securities any information which is not true or which he does not believe to be true prior to or in the course of dealing in securities.
(g) entering into a transaction in securities without intention of performing it or without intention of change in ownership of such security.
(h) selling, dealing or pledging of stolen or counterfeit security whether in physical or dematerialized form.
(i) an intermediary promising a certain price in respect of buying or selling of a security to a client and waiting till a discrepancy arises in the price of such security and retaining the difference in prices as profit for himself.
(j) an intermediary providing his clients with such information relating to a security as cannot be verified by the clients before their dealing in such security.

(k) an advertisement that is misleading or that contains information in a distorted manner and which may influence the decision of the investors.

(l) an intermediary reporting trading transactions to his clients entered into on their behalf in an inflated manner in order to increase his commission and brokerage.

(m) an intermediary not disclosing to his client transactions entered into on his behalf including taking an option position.

(n) circular transactions in respect of a security entered into between intermediaries in order to increase commission to provide a false appearance of trading in such security or to inflate, depress or cause fluctuations in the price of such security.

(o) encouraging the clients by an intermediary to deal in securities solely with the object of enhancing his brokerage or commission.

(p) an intermediary predating or otherwise falsifying records such as contract notes.

(q) an intermediary buying or selling securities in advance of a substantial client order or whereby a futures or option position is taken about an impending transaction in the same or related futures or options contract.

(r) planting false or misleading news which may induce sale or purchase of securities.

3.14 What are the main provisions of the Depositories Act, 1996?

The paper-based ownership and transfer of securities was a major drawback of the Indian securities markets since it often resulted in delay in settlement and transfer of securities, leading to 'bad delivery', theft, forgery etc. The rapid growth in number and volume of transactions in the securities markets further highlighted the limitations of handling securities in the physical/ paper mode. As a result, in line with the developments in the securities industry worldwide the paper-based settlement and clearing system was replaced with depository system or a scrip less trading system. This transition was facilitated by the Depositories Act, 1996.

This Act provides for the establishment of depositories in securities with the objective of ensuring free transferability of securities with speed, accuracy and security by:

(a) making securities of public limited companies freely transferable subject to certain exceptions;

(b) dematerialising the securities in the depository mode; and

(c) providing for maintenance of ownership records in a book entry form. In order to streamline the settlement process, the Act envisages transfer of ownership of securities electronically by book entry without making the securities move from person to person.

The Act has made the securities of all public limited companies freely transferable, restricting the company's right to use discretion in effecting the transfer of securities, and the transfer deed and other procedural requirements under the Companies Act have been dispensed with.

The terms used in the Act are defined as under:

(a) Beneficial owner means a person whose name is recorded as such with a depository.

(b) Depository means a company, formed and registered under the Companies Act, 2013 and which has been granted a certificate of registration under sub-section (1A) of section 12 of the SEBI Act, 1992.

(c) Issuer means any person making an issue of securities.

(d) Participant means a person registered as such under sub-section (1A) of section 12 of the SEBI Act,

1992.

(e) Registered owner means a depository whose name is entered as such in the register of the issuer.

No depository can act as a depository unless it obtains a certificate of commencement of business from the SEBI Board.

The Depositories Act, defines the rights and obligations of depositories, participants, issuers and beneficial owners which are mentioned below (Chapter III):

(a) Agreement between Depository and Participant: A depository is required to enter into an agreement in the specified format with one or more participants as its agent.

(b) Services of Depository: Any person, through a participant, may enter into an agreement, in such form as may be specified by the bye-laws, with any depository for availing its services.

(c) Surrender of Certificate of Security: Any person who has entered into an agreement with a depository should surrender the certificate of security, for which he seeks to avail the services of a depository, to the issuer in such manner as may be specified by the regulations. The issuer, on receipt of certificate of security, should cancel the certificate

(d) of security and substitute in its records the name of the depository as a registered owner in respect of that security and inform the depository accordingly. A depository should, on receipt of information enter the name of the person in its records, as the beneficial owner in respect of that security and inform the depository accordingly.

(e) Registration of Transfer of Securities with Depository; On receipt of intimation from a participant, the depository is required to register the transfer of security in the name of the transferee. If a beneficial owner or a transferee of any security seeks to have custody of such security, the depository should inform the issuer accordingly.

(f) Options to Receive Security Certificate or Hold Securities with Depository: Every person subscribing to securities offered by an issuer should have the option either to receive the security certificates or hold securities with a depository. Where a person opts to hold a security with a depository, the issuer should intimate such depository the details of allotment of the security, and on receipt of such information the depository should enter in its records the name of the allottee as the beneficial owner of that security.

(g) Securities in Depositories to be in Fungible Form: All securities held by a depository should be in dematerialised and be in fungible form.

(h) Rights of Depositories and Beneficial Owner: A depository is deemed to be the registered owner for the purpose of effecting transfer of ownership of security on behalf of a beneficial owner. The depository as a registered owner does not have any voting rights or any other rights in respect of securities held by it. The beneficial owner is entitled to all the rights and benefits and is subjected to all the liabilities in respect of his securities held by a depository.

(i) Pledge or Hypothecation of Securities held in a Depository: A beneficial owner may with the previous approval of the depository create a pledge or hypothecation in respect of a security owned by him through a depository. Every beneficial owner is required to give intimation of such pledge or hypothecation to the depository and accordingly the depository makes entries in its records. Any entry in the records of a depository would act as evidence of a pledge or hypothecation.

(j) Furnishing of Information and Records by Depository and Issuer: Every depository should furnish to the issuer information about the transfer of securities in the name of beneficial owners at such intervals and in such manner as may be specified by the bye-laws. Every issuer should make available

to the depository copies of the relevant records in respect of securities held by such depository.

(k) Option to Opt out in Respect of any Security: If a beneficial owner seeks to opt out of a depository in respect of any security, he should inform the depository accordingly. After receiving the information, the depository is required to make appropriate entries in its

(l) records and inform the issuer. Within thirty days of the receipt of intimation from the depository and on fulfilment of such conditions and payment of such fees as may be specified by the regulations, the issuer is required to issue the certificate of securities to the beneficial owner or the transferee, as the case may be.

(m) Depository to Indemnify Loss in certain cases: In case of any loss caused to the beneficial owner due to the negligence of the depository or the participant, the depository has to indemnify beneficial owner. Where the loss due to the negligence of the participant is indemnified by the depository, the depository has the right to recover the same from such participant.

Key words

Clearing, Settlement, Transaction, Risk, Capital, SEBI Regulations,

Questions for Practice

1. The day when the trading members/brokers are required to make payment of funds or delivery of securities is called .....?
   a) Pay Out
   b) Pay In
   c) Clearing
   d) Settlement

2. The process of transfers of funds from the clearing corporation to complete the funds settlement of a sale transaction is called .....?
   a) Settlement
   b) Funds Pay – In
   c) Funds Pay – out
   d) None of the above

3. Which of these is/ are Settlement Agency?
   a) Clearing Members
   b) Depositories
   c) NSCCL
   d) All of the above

4. NSCCL stands for.....?
   a) *National Securities Corporation Clearing Limited*
   b) *National Stock Clearing Corporation Limited*
   c) *National Securities Clearing Corporation Limited*
   d) *None of the above*

5. At NSE, trades in rolling settlement are settled on the .....?
   a) 2nd working day
   b) 5th working day
   c) 7th working day
   d) Last working day

6. ..... Is/ are Type(s) of Settlement?
   a) Securities Settlement
   b) Funds Settlement
   c) Both a & b
   d) None of the above

7. Which out of the below has NSCCL empanelled as a Clearing Bank?
   a) Indus Ind Bank
   b) Union Bank of India
   c) Canara Bank
   d) All of the above

8. Penalties are charged to members for .....?
   a) Margin Shortages
   b) Security Deposit Shortages
   c) Failure to fulfill their funds obligations

d) All of the above

9. ..... form a key part of the risk management system?
   a) Margins
   b) Securities
   c) Depositories
   d) None of the above

10. ..... Is the National Numbering Agency for India?
   a) NSDL
   b) RBI
   c) SEBI
   d) NSE

Chapter 4: Financial Statement Analysis

4.1 Concepts & Modes of Analysis

4.1.1 What is Simple Interest?

Simple Interest: Simple Interest is the interest paid only on the principal amount borrowed. No interest is paid on the interest accrued during the term of the loan.

There are three components to calculate simple interest: principal, interest rate and time.

Formula for calculating simple interest:

$$I = Prt$$

where,
I = interest
P = principal
r = interest rate (per year)
t = time (in years or fraction of a year)

Example:

Mr. X borrowed Rs. 10,000 from the bank to purchase a household item. He agreed to repay the amount in 8 months, plus simple interest at an interest rate of 10% per annum (year).

If he repays the full amount of Rs. 10,000 in eight months, the interest would be:
P = Rs. 10,000 r = 0.10 (10% per year) t = 8/12 (this denotes fraction of a year)

Applying the above formula, interest would be: I = Rs. 10,000*(0.10)*(8/12) = Rs. 667.

This is the Simple Interest on the Rs. 10,000 loan taken by Mr. X for 8 months. If he repays the amount of Rs. 10,000 in fifteen months, the only change is with time.

Therefore, his interest would be:
I = Rs. 10,000*(0.10)*(15/12) = Rs. 1,250

4.1.2 What is Compound Interest?

To quote Albert Einstein: "Compound interest is the eighth wonder of the world. He who understands it, earns it ... he who doesn't ... pays it."

Compound Interest: Compound interest means that, the interest will include interest calculated on interest. The interest accrued on a principal amount is added back to the principal sum, and the whole amount is then treated as new principal, for the calculation of the interest for the next period.

For example, if an amount of Rs. 5,000 is invested for two years and the interest rate is 10%, compounded yearly:

At the end of the first year the interest would be (Rs. 5,000 * 0.10) or Rs. 500.

In the second year the interest rate of 10% will applied not only to Rs. 5,000 but also to the Rs. 500 interests of the first year. Thus, in the second year the interest would be (0.10 * Rs. 5,500) or Rs. 550.

For any loan or borrowing unless simple interest is stated, one should always assume interest is compounded. When compound interest is used, we must always know how often the interest rate is calculated each year. Generally, the interest rate is quoted annually. Example, 10% per annum.

Compound interest may involve calculations for more than once a year, each using a new principal, i.e. (interest + principal). The first term we must understand in dealing with compound interest is conversion period. Conversion period refers to how often the interest is calculated over the term of the loan or investment. It must be determined for each year or fraction of a year.

Example, if the interest rate is compounded semiannually, then the number of conversion periods per year would be two. If the loan or deposit was for five years, then the number of conversion periods would be ten.

Formula for calculating Compound Interest:

$$C = P(1+i)^n$$

where,
C = amount P = principal
i = Interest rate per conversion period
n = total number of conversion periods

Example

Mr. X invested Rs. 10,000 for five years at an interest rate of 7.5% compounded quarterly
P = Rs. 10,000
i = 0.075 / 4, or 0.01875
n = 4 * 5, or 20, conversion periods over the five years
Therefore, the amount, C, is:
C = Rs. 10,000 (1 + 0.01875) ^ 20
= Rs 10,000 x 1.449948
= Rs 14,499.48
So at the end of five years Mr. X would earn Rs. 4,499.48 (Rs. 14,499.48 - Rs. 10,000) as interest. This is also called as Compounding.

Compounding plays a very important role in investment since earning a simple interest and earning an interest on interest makes the amount received at the end of the period for the two cases significantly different.
If Mr. X had invested this amount for five years at the same interest rate offering the simple interest option, then the amount that he would earn is calculated by applying the following formula:

S = P (1 + rt),
P = 10,000
r = 0.075
t = 5
Thus, S = Rs. 10,000[l+0.075(5)]
= Rs. 13,750
Here, the simple interest earned is Rs. 3,750.
A comparison of the interest amounts calculated under both the method indicates that Mr. X would have earned Rs. 749.48 (Rs.4,499.48 - Rs. 3,750) or nearly 20% more under the compound interest method than under the simple interest method.

Simply put, compounding refers to the re-investment of income at the same rate of return to constantly grow the principal amount, year after year. Should one care too much whether the rate of return is 5% or 15%? The fact is that with compounding, the higher the rate of return, more is the income which keeps getting added back to the principal regularly generating higher rates of return year after year.

The table below shows you how a single investment of Rs 10,000 will grow at various rates of return with compounding. 4-6% is what you might get by leaving your money in a savings bank account, 7-8% is typically the rate of return you could expect from a one-year company fixed deposit, 15% - 20% or more is what you might get if you prudently invest in mutual funds or equity shares, over the long term.

The Impact of Power of Compounding

The impact of the power of compounding with different rates of return and different time periods:

At end of Year	5%	10%	15%	20%
1	Rs 10,500	Rs 11,000	Rs 11,500	Rs 12,000
5	Rs 12,800	Rs 16,100	Rs 20,100	Rs 24,900
10	Rs 16,300	Rs 25,900	Rs 40,500	Rs 61,900
15	Rs 20,800	Rs 41,800	Rs 81,400	Rs 1,54,100
25	Rs 33,900	Rs 1,08,300	Rs3,29,200	Rs9,54,000

4.1.3 What is meant by the Time Value of Money?

Money has time value. The idea behind time value of money is that a rupee now is worth more than rupee in the future. The relationship between value of a rupee today and value of a rupee in future is known as 'Time Value of Money'. A rupee received now can earn interest in future. An amount invested today has more value than the same amount invested at a later date because it can utilize the power of compounding. Compounding is the process by which interest is earned on interest. When a principal amount is invested, interest is earned on the principal during the first period or year. In the second period or year, interest is earned on the original

principal plus the interest earned in the first period. Over time, this reinvestment process can help an amount to grow significantly.

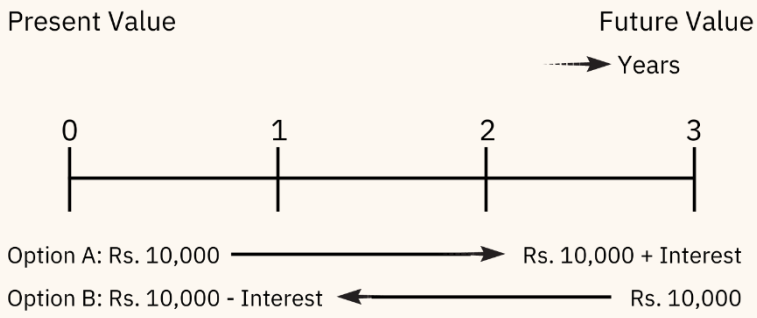
Let us take an example:

Suppose you are given two options:

Receive Rs. 10,000 now OR
Receive Rs. 10,000 after three years.
Which of the options would you choose?

Rationally, you would choose to receive the Rs. 10,000 now instead of waiting for three years to get the same amount. So, the time value of money demonstrates that, all things being equal, it is better to have money now rather than later.

Back to our example: by receiving Rs. 10,000 today, you are poised to increase the future value of your money by investing and gaining interest over a period of time. For option B, you don't have time on your side, and the payment received in three years would be your future value. To illustrate, we have provided a timeline:



If you are choosing option A, your future value will be Rs. 10,000 plus any interest acquired over the three years. The future value for option B, on the other hand, would only be Rs. 10,000. This clearly illustrates that value of money received today is worth more than the same amount received in future since the amount can be invested today and generate returns.

Let us take another example:

If you choose option A and invest the total amount at a simple annual rate of 5%, the future value of your investment at the end of the first year is Rs. 10,500, which is calculated by multiplying the principal amount of Rs. 10,000 by the interest rate of 5% and then adding the interest gained to the principal amount.

Thus, Future value of investment at end of first year:
= ((Rs. 10,000 X (5/100)) + Rs. 10,000
= (Rs.10,000 X 0.050) + Rs. 10,000
= Rs. 10,500

You can also calculate the total amount of a one-year investment with a simple modification of the above equation:

Original equation: (Rs.10,000 x 0.050) + Rs.10,000 = Rs.10,500 Modified formula: Rs.10,000 x [(1 x 0.050) + 1] = Rs.10,500 Final equation: Rs. 10,000 x (0.050 + 1) = Rs. 10,500

Which can also be written as: **S = P (r+ 1)**

where,
S = amount received at the end of period P = principal amount
r = interest rate (per year)

This formula denotes the future value (S) of an amount invested (P) at a simple interest of (r) for a period of 1 year.

1. How is time value of money computed?

The time value of money may be computed in the following circumstances:

- Future value of a single cash flow
- Future value of an annuity
- Present value of a single cash flow
- Present value of an annuity

(1) Future Value of a Single Cash Flow

For a given present value (PV) of money, future value of money (FV) after a period M:' for which compounding is done at an interest rate of V, is given by the equation

$$FV = PV (1+r)^t$$

This assumes that compounding is done at discrete intervals. However, in case of continuous compounding, the future value is determined using the formula

$$FV = PV * e^{rt}$$

Where 'e' is a mathematical function called 'exponential' the value of exponential (e) = 2.7183. The compounding factor is calculated by taking natural logarithm (log to the base of 2.7183).

Example 1: Calculate the value of a deposit of Rs.2,000 made today, 3 years hence if the interest rate is 10%.

By discrete compounding:

FV = 2,000 * (1+0.10)3 = 2,000 * (1.1)3 = 2,000 * 1.331 = Rs. 2,662

By continuous compounding:

FV = 2,000 * e (0.10*3) =2,000 * 1.349862 = Rs.2699.72

(2) Future Value of an Annuity

An annuity is a stream of equal annual cash flows. The future value (FVA) of a uniform cash flow (CF) made at the end of each period till the time of maturity 't' for which compounding is done at the rate V is calculated as follows:

$FVA = CF*(1+r)^{t-1} + CF*(1+r)^{t-2} + \ldots + CF*(1+r)^{1} + CF$

$$= CF \left[\frac{(1+r)^t - 1}{r}\right]$$

The term $CF \left[\frac{(1+r)^t - 1}{r}\right]$ is referred as the Future Value Interest factor for an annuity (FVIFA).

The same can be applied in a variety of contexts. For example, to know accumulated amount after a certain period, to know how much to save annually to reach the targeted amount, to know the interest rate etc.

Example 1: Suppose, you deposit Rs.3,000 annually in a bank for 5 years and your deposits earn a compound interest rate of 10 per cent, what will be value of this series of deposits (an annuity) at the end of 5 years? Assume that each deposit occurs at the end of the year.

Future value of this annuity is:

$= Rs.3000*(1.10)^4 + Rs.3000*(1.10)^3 + Rs.3000*(1.10)^2 + Rs.3000*(1.10) + Rs.3,000$
$= Rs.3000*(1.4641)+Rs.3000*(1.3310)+Rs.3000*(1.2100)+Rs.3000*(1.10) + Rs.3000$
= Rs. 18315.30

(3) Present Value of a Single Cash Flow

Present value of (PV) of the future sum (FV) to be received after a period T for which discounting is done at an interest rate of V, is given by the equation

In case of discrete discounting: $PV = FV / (1+r)^t$

Example 1: What is the present value of Rs.5,000 payable 3 years hence, if the interest rate is 10 % p.a.

$PV = 5000/ (1.10)^3$ i.e. = Rs.3756.57 In

In case of continuous discounting: $PV = FV * e^{rt}$

Example 2: What is the present value of Rs. 10,000 receivable after 2 years at a discount rate of 10% under continuous discounting? Present Value = 10,000/(exp^(0.1*2)) = Rs. 8187.297

(4) Present Value of an Annuity

The present value of annuity is the sum of the present values of all the cash inflows of this annuity.

Present value of an annuity (in case of discrete discounting):

$$PVA = FV\ [\{(1+r)^t - 1\} / \{r * (1+r)^t\}]$$

The term $[(1+r)^t = 1/ r*(1+r)^t]$ is referred as the Present Value Interest factor for an annuity (PVIFA).

Present value of an annuity (in case of continuous discounting):

$$PV_a = FV_a * (1-e^{-rt})/r$$

Example 1: What is the present value of Rs. 2000/- received at the end of each year for 3 continuous years

= 2000*[l/1.10]+2000*[l/1.10]^ 2+2000*[l/1.10]^3

= 2000*0.9091+2000*0.8264+2000*0.7513

= 1818.181818+1652.892562+1502.629602

= Rs. 4973.704

2. What is Effective Annual return?

Usually while applying for a fixed deposit or a bond it is stated in the application form, that the annual return (interest) of an investment is 10%, but the effective annual return mentioned is something more, 10.38%. Why the difference? Essentially, the effective annual return accounts for intra-year compounding and the stated annual return does not. The difference between these two measures is best illustrated with an example. Suppose the stated annual interest rate on a savings account is 10%, and say you put Rs 1,000 into this savings account. After one year, your money would grow to Rs 1,100. But, if the account has a quarterly compounding feature, your effective rate of return will be higher than 10%. After the first quarter, or first three months, your savings would grow to Rs 1,025. Then, in the second quarter, the effect of compounding would become apparent: you would receive another Rs 25 in interest on the original Rs 1,000, but you would also receive an additional Rs 0.63 from the Rs. 25 that was paid after the first quarter. In other words, the interest earned in each quarter will increase the interest earned in subsequent quarters. By the end of the year, the power of quarterly compounding would give you a total of Rs 1,103.80. So, although the stated annual interest rate is 10%, because of quarterly compounding, the effective rate of return is 10.38%. The difference of 0.38% may appear insignificant, but it can be huge when you're dealing with large numbers. 0.38% of Rs. 100,000 is Rs 380! Another thing to consider is that compounding does not necessarily occur quarterly, or only four times a year, as it does in the example above. There are accounts that compound monthly, and even some that compound daily. And, as our example showed, the frequency with which interest is paid (compounded) will have an effect on effective rate of return.

4.1.4 How to go about systematically analyzing a company?

You must look for the following to make the right analysis:

Industry Analysis: Companies producing similar products are subset (form a part) of an Industry/Sector. For example, National Hydroelectric Power Company (NHPC) Ltd., National Thermal Power Company (NTPC) Ltd., Tata Power Company (TPC) Ltd. etc. belong to the Power Sector/Industry of India. It is very important to see how the industry to which the company belongs is faring. Specifics like effect of Government policy, future demand of its products etc. need to be checked. At times prospects of an industry may change drastically by any alterations in business environment. For instance, devaluation of rupee may brighten prospects of all export-oriented companies. Investment analysts call this as Industry Analysis.

Corporate Analysis: How has the company been faring over the past few years? Seek information on its current operations, managerial capabilities, growth plans, its past performance vis-a-vis its competitors etc. This is known as Corporate Analysis.

Financial Analysis: If performance of an industry as well as of the company seems good, then check if at the current price, the share is a good buy. For this look at the financial performance of the company and certain key financial parameters like Earnings Per Share (EPS), P/E ratio, current size of equity etc. for arriving at the estimated future price. This is termed as Financial Analysis. For that you need to understand financial statements of a company i.e., Balance Sheet and Profit and Loss Account contained in the Annual Report of a company.

1. **What is an Annual Report?**

An annual report is a formal financial statement issued yearly by a corporate. The annual report shows assets, liabilities, revenues, expenses and earnings - how the company stood at the close of the business year, how it fared profit-wise during the year, as well as other information of interest to shareholders. Companies publish annual reports and send abridged versions to shareholders free of cost. A detailed annual report is sent on request. Remember an annual report of a company is the best source of information about the financial health of a company.

2. **Which features of an Annual Report should one read carefully?**

One must read an Annual Report with emphasis on the following:

- Director's Report and Chairman's statement which are related to the current and future operational performance of a company
- Management Discussion and Analysis or MD&A, which talks about the past performance and the future prospects of the company and the industry in which it operates
- Auditors' Report (including Annexure to the Auditors Report)
- Profit and Loss Account
- Balance Sheet
- Notes to accounts attached to the Balance Sheet

3. What do these sources of funds represent?

As shown in a sample balance sheet in Box-1, there are two sources of funds:

Shareholders' Fund (also known as **Net Worth**) is the fund coming from the owners of the company; and **Loan Fund** is the fund borrowed from outsiders.

When a company/firm starts operations, its owners, called shareholders, contribute funds called **Share Capital**. Note that in Box-1 XYZ COMPANY LTD.'s capital in 2005 was Rs. 103.87 crore. The shareholders being the owners, share part of the profit of the company, as dividend. Share capital has been further divided into **equity capital** and **preference capital**. Equity capital does not have fixed rate of dividend. The preference capital represents contribution of preference shareholders and has fixed rate of dividend.

After distributing dividends, a part of the profit is retained by the company for meeting fund requirements in future. The retained profits accumulated over the years are called **reserves and surplus**, which are shareholders' property. In case of XYZ COMPANY LTD., note that the reserves and surplus increased from Rs. 387.70 crore in 2004 to Rs. 479.21 crore in 2005.

4. What is the difference between Equity shareholders and Preferential shareholders?

Equity Shareholders are supposed to be the owners of the company, who therefore, have right to get dividend, as declared, and a right to vote in the Annual General Meeting for passing any resolution.

The act defines a **preference share** as that part of share capital of the Company which enjoys preferential right as to: (a) payment of dividend at a fixed rate during the life time of the Company; and (b) the return of capital on winding up of the Company.

But Preference shares cannot be traded, unlike equity shares, and are redeemed after a pre-decided period. Also, **Preferential Shareholders** do not have voting rights.

5. What is the difference between Equity shareholders and Preferential shareholders?

- **Authorized Capital** is the maximum capital that a company is authorized to raise.
- **Issued Capital** is that part of the authorized capital which is offered by the company for being subscribed by members of the public or anybody.
- **Subscribed Capital** is that part of the issued capital which is subscribed (accepted) by the public.
- **Called-up Capital** is a part of subscribed capital which has been called up by the company for payment. For example, if 10,000 shares of Rs. 100 each have been subscribed by the public and of which Rs. 50 per share has been called up. Then the subscribed capital of the Company works out to Rs. 1,00,000 of which the called-up capital of the Company is Rs. 50,0000.
- **Paid-up Capital** refers to that part of the called-up capital which has been actually paid by the shareholders. Some of the shareholders might have defaulted in paying the called-up money. Such defaulted amount is called as arrears. From the called-up capital, calls in arrears is deducted to obtain the paid-up capital.

6. What is the difference between secured and unsecured loans under Loan Funds?

Secured loans are the borrowings against the security i.e., against mortgaging some immovable property or hypothecating/pledging some movable property of the company. This is known as creation of charge, which safeguards creditors in the event of any default on the part of the company. They are in the form of debentures, loans from financial institutions and loans from commercial banks. Notice that in case of the XYZ COMPANY LTQ, it was Rs. 353.34 crore as on March 31, 2005. The unsecured loans are other short-term borrowings without a specific security. They are fixed deposits, loans and advances from promoters, inter-corporate borrowings, and unsecured loans from the banks. Such borrowings amount to Rs. 129.89 crore in case of the XYZ COMPANY LTD.

7. What is the difference between secured and unsecured loans under Loan Funds?

The funds collected by a company from the owners and outsiders are employed to create following assets:

- **Fixed Assets:** These assets are acquired for long-terms and are used for business operation, but not meant for resale. The land and buildings, plant, machinery, patents, and copyrights are the fixed assets. In case of the XYZ COMPANY LTD., fixed assets are worth Rs. 526.75 crore.
- **Investments:** The investments are the financial securities created by investing surplus funds into any non-business-related avenues for getting income either for long-term or short-term. Thus, incomes and gains from the investments are not from the business operations.
- **Current Assets, Loans, and Advances:** This consists of cash and other resources which can be converted into cash during the business operation. Current assets are held for a short-term period for meeting day-to day operational expenditure. The current assets are in the form of raw materials, finished goods, cash, debtors, inventories, loans and advances, and pre-paid expenses. For the XYZ COMPANY LTD., current assets are worth Rs. 1165.20 crore.
- **Miscellaneous Expenditures and Losses:** The miscellaneous expenditures represent certain outlays such as preliminary expenses and pre-operative expenses not written off. Though loss indicates a decrease in the owners' equity, the share capital cannot be reduced with loss. Instead, share capital and losses are shown separately on the liabilities side and assets side of the balance sheet, respectively.

8. What do the sub-headings under the Fixed Assets like 'Gross block' 'Depreciation', 'Net Block' and Capital-Work in Progress' mean?

The total value of acquiring all fixed assets (even though at different points of time) is called **'Gross Block'** or **'Gross Fixed Asset'**.

As per accounting convention, all fixed assets except land have a fixed life. It is assumed that every year the worth of an asset falls due to usage. This reduction in value is called **'Depreciation'**. The Companies Act 1956 stipulates different rates of depreciation for different types of assets and different methods calculating depreciation, namely, Straight Line Method (constant annual method) and Written Down Value Method (depreciation rate decreases over a period of time).

The worth of the fixed assets after providing for depreciation is called **'Net Block'**. In case of the XYZ COMPANY LTD., Net Block was Rs. 464.65 crore as on March 31, 2005.

Gross Block-Depreciation = Net Block Rs. 946.84- Rs. 482.19 = Rs. 464.65

The capital/funds used for a new plant under erection, a machine yet to be commissioned etc. are examples of **'Capital Work in Progress'**, which also has to be taken into account while calculating the fixed assets as it will be converted into gross block soon.

9. What are Current Liabilities and Provisions and Net Current Assets in the balance sheet?

A company may receive many of its daily services for which it does not have to pay immediately like for raw materials, goods and services brought on credit. A company may also accept advances from the customer. The company thus has a liability to pay though the payment is deferred. These are known as **'Current Liabilities'**. Similarly, the company may have to provide for certain other expenses (though not required to be paid immediately) like dividend to shareholders, payment of tax etc. These are called **'Provisions'**. In short, Current Liabilities and Provisions are amounts due to the suppliers of goods and services brought on credit, advances payments received, accrued expenses, unclaimed dividend, provisions for taxes, dividends, gratuity, pensions, etc.

Current Liabilities and Provisions, therefore, reduce the burden of day-today expenditure on current assets by deferring some of the payments. For daily operations the company requires funds equal to the current assets less the current liabilities. This amount is called **'Net Current Assets'** or **'Net Working Capital'**. In case of the XYZ COMPANY LTD., Net Current Asset figure of Rs. 430.98 cr. has been arrived at by deducting Current Liabilities (Rs. 595.22 cr.) and Provisions (Rs. 139 cr.) from Current Assets worth Rs. 1165.20 crore.

10. How is balance sheet summarized?

A balance sheet indicates matching of sources of funds with application of funds. In case of the XYZ Company Ltd., Total Funds Employed' to the tune of Rs. 1066.31 cr. are from the said two Sources of Funds-Shareholders Funds and Loan Funds. These funds have been utilized to fund Total (Net) Assets of Rs. 1066.31 cr. that consist of Fixed Assets (Rs. 526.75 cr.), Investments (Rs. cr.) and Net Current Assets (Rs. 430.98 cr.).

Thus, in a balance sheet,

Total Capital Employed = Net Assets.

What does a Profit and Loss Account statement consist of?

A Profit and Loss Account shows how much profit or loss has been incurred by a company from its income after providing for all its expenditure within a financial year. One may also know how the profit available for appropriation is arrived at by using profit after tax as well as portion of reserves. Further, it shows the profit appropriation towards dividends, general reserve and balance carried to the balance sheet.

The Box-2 exhibits Profit and Loss Account of XYZ Company Ltd. Item-1 represents income, Items from 2 to 6 show various expenditure items. Items from 7 to 12 show the profits available for appropriation and items 13 (a), (b), and (c) indicate appropriation of profits.

4.2 Ratio Analysis

Mere statistics/data presented in the different financial statements do not reveal the true picture of a financial position of a firm. Properly analysed and interpreted financial statements can provide valuable insights into a firm's performance. To extract the information from the financial statements, a number of tools are used to analyse such statements. The most popular tool is the **Ratio Analysis**.

Financial ratios can be broadly classified into three groups: (i) Liquidity ratios, (ii) Leverage/Capital structure ratio, and (iii) Profitability ratios.

4.2.1 What are Liquidity ratios?

Liquidity: Liquidity refers to the ability of a firm to meet its financial obligations in the short-term which is less than a year.

Certain ratios, which indicate the liquidity of a firm, are:

(i) Current Ratio
(ii) Acid Test Ratio
(iii) Turnover Ratios

It is based upon the relationship between current assets and current liabilities.

(i)

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

The current ratio measures the ability of the firm to meet its current liabilities from the current assets. Higher the current ratio, greater the short- term solvency (i.e., larger is the amount of rupees available per rupee of liability).

(ii)

$$\text{Acid-test Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

Quick assets are defined as current assets excluding inventories and prepaid expenses. The acid-test ratio is a measurement of firm's ability to convert its current assets quickly into cash in order to meet its current liabilities. Generally speaking, 1:1 ratio is considered to be satisfactory.

(iii)

Turnover Ratios:

Turnover ratios measure how quickly certain current assets are converted into cash or how efficiently the assets are employed by a firm. The important turnover ratios are:

Inventory Turnover Ratio, Debtors Turnover Ratio, Average Collection Period, Fixed Assets Turnover and Total Assets Turnover

Inventory Turnover Ratio =	Cost of Goods Sold
	Average Inventory

where, the cost of goods sold means sales minus gross profit. 'Average Inventory' refers to simple average of opening and closing inventory. The inventory turnover ratio tells the efficiency of inventory management. Higher the ratio, more the efficient of inventory management.

Debtors' Turnover Ratio =	Net Credit Sales
	Average Accounts Receivable (Debtors)

The ratio shows how many times accounts receivable (debtors) turns over during the year. If the figure for net credit sales is not available, then net sales figure is to be used. Higher the debtor's turnover, the greater the efficiency of credit management.

Average Collection Period =	Average Debtors
	Average Daily Credit Sales

Average Collection Period represents the number of days' worth credit sales that is locked in debtors (accounts receivable).

Please note that the Average Collection Period and the Accounts Receivable (Debtors) Turnover are related as follows:

Average Collection Period =	365 days
	Debtors Turnover

Fixed Assets turnover ratio measures sales per rupee of investment in fixed assets. In other words, how efficiently fixed assets are employed. Higher ratio is preferred. It is calculated as follows:

Fixed Asset Turnover Ratio =	Net Sales
	Net Fixed Assets

Total Assets turnover ratio measures how efficiently all types of assets are employed.

Total Asset Turnover Ratio =	Net Sales
	Net Total Assets

4.2.2 Which are the Leverage / Capital Structure Ratios?

Leverage: Long term financial strength or soundness of a firm is measured in terms of its ability to pay interest regularly or repay principal on due dates or at the time of maturity. Such long-term solvency of a firm can be judged by using leverage or capital structure ratios.

Broadly there are two sets of ratios: First, the ratios based on the relationship between borrowed funds and owner's capital which are computed from the balance sheet. Some such ratios are: Debt to Equity and Debt to Asset ratios. The second set of ratios which are calculated from Profit and Loss Account are: The interest coverage ratio and debt service coverage ratio are coverage ratio to leverage risk.

(i) **Debt-Equity Ratio** reflects relative contributions of creditors and owners to finance the business.

Debt-Equity Ratio =	Total Debt
	Total Equity

The desirable/ideal proportion of the two components (high or low ratio) varies from industry to industry.

Debt-Asset Ratio: Total debt comprises of long-term debt plus current liabilities. The total assets comprise of permanent capital plus current liabilities.

Debt-Asset Ratio =	Total Debt
	Total Equity

(ii) The second set or the coverage ratios measure the relationship between proceeds from the operations of the firm and the claims of outsiders.

Interest Coverage Ratio =	Earnings before Interest and Taxes
	Interest

Higher the interest coverage ratio better is the firm's ability to meet its interest burden. The lenders use this ratio to assess debt servicing capacity of a firm.

(iii)**Debt Service Coverage Ratio (DSCR)** is a more comprehensive and apt to compute debt service capacity of a firm. Financial institutions calculate the average DSCR for the period during which the term loan for the project is repayable. The Debt Service Coverage Ratio is defined as follows:

Profit after Tax + Depreciation + Other Non-cash Expenditure + Interest on Term Loan
Interest on Term Loan + Repayment of Term Loan

4.2.3 Which are the Profitability Ratios?

Profitability Ratios: Profitability and operating/management efficiency of a firm is judged mainly by the following profitability ratios:

(i) **Gross Profit Ratio** (%) =	Gross Profit / Net Sales	* 100

(ii) **Net Profit Ratio** (%) =	Net Profit / Net Sales	* 100

Some of the profitability ratios related to investments are:

(iii) **Return on Total Assets** =	Profit Before Interest and Tax / Fixed Assets + Current Assets

(iv) **Return on Capital Employed** =	Net Profit After Tax / Total Capital Employed

(Here, Total Capital Employed = Total Fixed Assets + Current Assets - Current Liabilities)

(v) **Return on Shareholders' Equity** =	Net Profit After Tax / Average Total Shareholders' Equity or Net Worth

(Net worth includes Shareholders' equity capital plus reserves and surplus)

A common (equity) shareholder has only a residual claim on profits and assets of a firm, i.e., only after claims of creditors and preference shareholders are fully met, the equity shareholders receive a distribution of profits or assets on liquidation.

A measure of his wellbeing is reflected by return on equity. There are several other measures to calculate return on shareholders' equity of which the following are the stock market related ratios.

Earnings Per Share (EPS): EPS measures the profit available to the equity shareholders per share, that is, the amount that they can get on every share held. It is calculated by dividing the profits available to the shareholders by number of outstanding shares. The profits available to the ordinary shareholders are arrived at as net profits after taxes minus preference dividend.

It indicates the value of equity in the market.

$$\text{EPS} = \frac{\text{Net Profit Available to the Shareholder}}{\text{Number of Ordinary Shares Outstanding}}$$

$$\text{Price-earnings ratios = P/E Ratio} = \frac{\text{Market Price per Share}}{\text{EPS}}$$

Illustration

Balance Sheet of ABC Co. Ltd. as on March 31, 2020 (in Rs. Crore)

Liabilities	Amount	Assets	Amount	
Share Capital	16.00	Fixed Assets (net)		60.00
(1,00,00,000 equity shares				
of Rs.10 each)				
Reserves & Surplus	22.00	Current Assets:		23.40
Secured Loans	21.00	Cash & Bank	0.20	
Unsecured Loans	25.00	Debtors	11.80	
Current Liabilities & Provisions	16.00	Inventories	10.60	
		Pre-paid expenses	0.80	
		Investments		16.60
Total	**100**	**Total**		**100**

Profit & Loss Account of ABC Co. Ltd. for the year ending on March 31, 2005:

Particulars	Amount	Particulars	Amount
Opening Stock	13.00	Sales (net)	105.00
Purchases	69.00	Closing Stock	15.00
Wages and Salaries	12.00		
Other Mfg. Expenses	10.00		
Gross Profit	16.00		
Total	**120.00**	**Total**	**120.00**
Administrative and Personnel Expenses	1.50	Gross Profit	16.00
Selling and Distribution Expenses	2.00		
Depreciation	2.50		
Interest	1.00		
Net Profit	9.00		
Total	**16.00**	**Total**	**16.00**
Income Tax	4.00	Net Profit	9.00
Equity Dividend	3.00		
Retained Earning	2.00		
Total	**9.00**	**Total**	**9.00**

Market price per equity share = Rs. 20.00

Current Ratio = Current Assets / Current Liabilities

= 23.40/16.00 = 1.46

Quick Ratio = Quick Assets / Current Liabilities

=Current Assets-(inventory + prepaid expenses)/Current Liabilities

= [23.40-(10.60+0.8)]/16.00 = 12.00/16.00 = 0.75

Inventory Turnover Ratio = Cost of goods sold/Average Inventory

= (Net Sales-Gross Profit)/ [(opening stock+closing stock)/2]

= (105-16)/ [(15+13)/2] = 89/14 = 6.36

Debtors Turnover Ratio = Net Sales/ Average account receivables (Debtors)

= 105/11.80 =8.8983

Average Collection Period = 365 days / Debtors turnover

= 365 days/8.8983 = 41 days

Fixed Assets Turnover Ratio = Net Sales / Net Fixed Assets

= 105/60 = 1.75

Debt to Equity Ratio = Debt/ Equity

= (21.00+25.00)/ (16.00+22.00) = 46/38 = 1.21

Gross Profit Ratio = Gross Profit/Net Sales

= 16.00/105.00 = 0.15238 or 15.24%

Net Profit Ratio = Net Profit / Net Sales

= 9/105.00 = 0.0857 or 8.57 %

Return on Shareholders' Equity = Net Profit after tax/Net worth

= 5.00/ (16.00+22.00) =0.13157 or 13.16%

Questions for Practice

1. Calculate the value of a deposit of Rs. 2000 made today, 3 years hence if the interest rate is 10%. (Discrete compounding).
   - **a. 2662**
   - b. 2536
   - c. 2456
   - d. None

2. Calculate the value of a deposit of Rs. 2000 made today, 3 years hence if the interest rate is 10%. (Cont. Compounding)
   - **a. 2699.72**
   - b. 2099
   - c. 2090
   - d. None

3. How much a deposit of Rs. 10,000 will grow at the end of 2 years, if the nominal rate of interest is 12% and compounding is done quarterly?
   - **a. 12667.70**
   - b. 13202
   - c. 12000
   - d. None

4. You want to buy a house after 5 years when it is expected to cost 40 lakh how much should you save annually, if yours saving earn a compounded return of 12%.?
   - **a. 629623.80**
   - b. 52365
   - c. 65478
   - d. None

5. What is the PV of Rs. 5000 payable 3 years hence if the interest rate is 10% p.a.?(Discrete. Discounting)
   - **a. 3756.57**
   - b. 2365.68
   - c. 3567
   - d. None

6. What is the PV of Rs. 5000 payable 3 years hence if the interest rate is 10% p.a.?(cont. Discounting)
   - **a. 3706.44**
   - b. 2879
   - c. 3696
   - d. None

7. What is the PV of Rs. 10,000 receivable after 2 years at a discount rate of 10% under continuous discounting?
   - **a. 8187.297**
   - b. 8183
   - c. 8185
   - d. None

8. What is the PV of Rs. 2000 received at the end of each years for 3 continuous years ?
   - **a. 4973.704**
   - b. 4923
   - c. 4978
   - d. None

9. At 6% annual inflation rate, an item costing Rs. 100 today, would cost Rs. _____ after twenty five years.
   a. 220
   b. 429
   c. 440
   d. 520

10. What is the present value of Rs. 6000 receivable after three years at a discount rate of 5% under continuous discounting?
   a. 5429.02
   b. **5164.24**
   c. 5700
   d. 6300

Chapter 5: Introduction to Derivatives

In this Chapter, you will learn:

- Basic Derivatives
- Types of Derivatives Contracts
- Financial Derivatives Market History
- Economic Function of the Derivative Market
- Understanding Interest Rates and Stock Index
- Desirable Attributes of an Index

The term 'Derivative' stands for a contract whose price is derived from or is dependent upon an underlying asset. The underlying asset could be a financial asset such as currency, stock and market index, an interest-bearing security or a physical commodity. Today, around the world, derivative contracts are traded on electricity, weather, temperature and even volatility. According to the Securities Contract Regulation Act, (1956) the term "derivative" includes:

- a security derived from a debt instrument, share, loan, whether secured or unsecured, risk instrument or contract for differences or any other form of security;
- a contract which derives its value from the prices, or index of prices, of underlying securities.

The concept of derivatives can be traced back to the Mesopotamian era when the sixth Babylonian king allowed sale of goods and assets at a pre-agreed price, delivered at a future date. This is nothing but a derivative. The working of a derivative contract of this nature is very simple. Let us understand this with the help of an illustration.

Illustration

Consider that you are a farmer who has 10 acres of land. You can either cultivate rice in all 10 acres or cultivate rice in 5 acres and wheat in the remaining 5. If you cultivate rice in all 10 acres, and the demand for wheat is high that year, it would mean that you lose out on potentially high profits that you could have made if you had cultivated wheat. If you cultivate rice and wheat, and if the demand and price for rice is very high that year, then you lose out on potentially high profits arising from rice. So how do you resolve this issue?

You can enter into a contract with a distributor to purchase all your produce – whether it be all rice or 50% rice and 50% wheat, at the beginning itself, before you even begin cultivation. This way, you are assured that whatever is agreed upon, if you cultivate it, it will be sold in its entirety. Even the price that you will get for it is agreed upon in the beginning itself. Thus, you don't incur any risk from the decision, that your produce may not get sold. This agreement is a derivative contract, where the underlying asset is the produce!

Why is it important to learn Derivatives?

In the past two decades, there has been exponential growth in the volume of international trade and business due to the adoption of globalization and liberalization all over the world. The demand for the international money and financial instruments increased significantly at global level. In turn, change in exchange rates, interest rates and stock prices of different financial markets have increased the financial risk to the corporates and investors globally. Adverse changes in any of these threatened the survival of business world. Therefore, in order to manage such risk, the new instruments have been developed in the financial markets, which are popularly known as financial derivatives at national and international financial market. The primary purpose of these instruments is to ensure commitments to prices for future dates for giving protection against adverse movements in future prices to reduce the extent of financial risk in financial markets. Now there is a faster development in derivatives products as well as trading as they are very significant for every corporate and investor.

In India, emergence and growth of derivative market is completely new phenomenon. The introduction of equity derivatives was essentially the beginning of a new era in the Indian Capital Market. With the launch of Index Futures in June 2000, as the first derivative product, SEBI expanded the portfolio by quickly adding index options, individual stock options and individual stock futures. So now, the growth of this market has been quite significant. With these products in place, Indian Capital Market is at par with any other Capital Market across the globe. The Indian derivative market has exhibited exponential growth in terms of volume and number of contracts traded. The market turnover of NSE has grown from Rs 2,365 crores in 2000-01 to Rs 3, 82, 11,408.05 crores in 2013-14 and BSE market turnover also increased from Rs 5021.81 crores in 2003-04 to Rs 92, 19,434.32 crores in 2013-14. Within a short span of fourteen years, there is a substantial development in derivatives trading in terms of turnover and number of contracts traded in India.

As derivatives are new products in Indian capital market, most of the investors are not aware about such a new product. Thus, there is a need to make the sense of availability of these new financial products and their usefulness particularly among medium and retail investors.

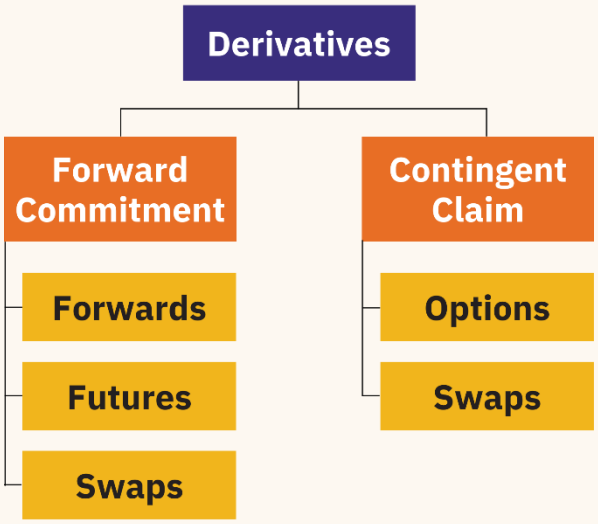
5.1 What are the types of Derivatives Contracts?

Derivatives can be classified in 3 ways:

1. On the basis of the nature of the Derivative Contract
2. On the basis of the Underlying Asset
3. On the basis of the Place of Trading

1. Classification on the basis of the nature of the Derivative Contract

Derivatives can be broadly classified into 2 types based on the nature of contract as can be seen from the following diagram. All types of derivatives fall into either of these 2 categories.



Forward Commitment:

These derivatives comprise of an assured occurrence in the future. The underlying asset will get exchanged at a fixed future time, at a fixed price, agreed upon by both parties at the time of entering into the contract. Since the exchange is fixed at a future time, it is called a Forward Commitment. Neither party can back out of the contract once it has been entered into, except under mutual consent. Futures, Forwards and Swaps are three main types of derivatives that fall under this category. We will discuss each of these in detail in subsequent sessions.

Contingent Claim:

These derivatives comprise of an exchange subject to a certain event occurring at a future time. If the event occurs, then the underlying asset will be exchanged at a fixed future time, at a fixed price, agreed upon by both parties at the time of entering into the contract. Since the exchange is contingent on the occurrence of an event, it is known as contingent claim. If the event does not occur, the contract becomes null and void and will expire on the expiration date. Options and swaps come under this category.

2. Classification based on the Underlying Asset

Another way of classifying derivatives is on the basis of the Underlying Asset. The types are as follows:

Table 5.1: Classification of Derivatives based on the Underlying Asset

Type of Derivative	Underlying Asset
Equity	Stock / Share
Index	Any broad-spectrum or sectoral index
Interest rate	Debt instrument – loans / asset backed securities
Currency	Foreign Exchange
Commodities	Any commodity

3. Classification on the basis of the Place of Trading

Derivatives can either be traded over the counter (OTC) or on an organized exchange. Based on the place of trade, they are called OTC derivatives and Exchange traded derivatives respectively. Usually forwards, some types of options, swaps exotic products are OTC derivatives. Futures, exchange-traded options are exchange traded derivatives.

Box 5.1: over the Counter (OTC) Derivative Contracts

Derivatives that trade on an exchange are called exchange traded derivatives, whereas privately negotiated derivative contracts are called OTC contracts. The OTC derivatives markets have the following features compared to exchange-traded derivatives: (i) The management of counter-party (credit) risk is decentralized and located within individual institutions, (ii) There are no formal centralized limits on individual positions, leverage, or margining, (iii) There are no formal rules for risk and burden-sharing, (iv) There are no formal rules or mechanisms for ensuring market stability and integrity, and for safeguarding the collective interests of market participants, and (iv) The OTC contracts are generally not regulated by a regulatory authority and the exchange's self-regulatory organization. They are however, affected indirectly by national legal systems, banking supervision and market surveillance.

5.2 Which are the basic Derivatives?

Over the past couple of decades several exotic contracts have also emerged but these are largely the variants of these basic contracts. Let us briefly define some of these above-mentioned contracts

Forward Contracts: These are promises to deliver an asset at a pre- determined date in future at a predetermined price. Forwards are highly popular on currencies and interest rates. The contracts are traded over the counter (i.e., outside the stock exchanges, directly between the two parties) and are customized according to the needs of the parties. Since these contracts do not fall under the purview of rules and regulations of an exchange, they generally suffer from counterparty risk i.e., the risk that one of the parties to the contract may not fulfil his or her obligation.

Futures Contracts: A futures contract is an agreement between two parties to buy or sell an asset at a certain time in future at a certain price. These are basically exchange traded, standardized contracts. The exchange stands guarantee to all transactions and counterparty risk is largely eliminated.

The buyers of futures contracts are considered having a long position whereas the sellers are considered to be having a short position. It should be noted that this is similar to any asset market where anybody who buys is long and the one who sells in short.

Futures contracts are available on variety of commodities, currencies, interest rates, stocks and other tradable assets. They are highly popular on stock indices, interest rates and foreign exchange.

Option Contracts: Options give the buyer (holder) a **right but not an obligation** to buy or sell an asset in future. Options are of two types - calls and puts. **Calls** give the buyer the right but not the obligation to buy a given quantity of the underlying asset, at a given price on or before a given future date. **Puts** give the buyer

the right, but not the obligation to sell a given quantity of the underlying asset at a given price on or before a given date. One can buy and sell each of the contracts. When one buys an option, he is said to be having a long position, and when one sells, he is said to be having a short position.

It should be noted that, in the first two types of derivative contracts (forwards and futures) both the parties (buyer and seller) have an obligation; i.e., the buyer needs to pay for the asset to the seller and the seller needs to deliver the asset to the buyer on the settlement date. In case of options only the seller (also called option writer) is under an obligation and not the buyer (also called option purchaser). The buyer has a right to buy (call options) or sell (put options) the asset from / to the seller of the option but he may or may not exercise this right. In case the buyer of the option does exercise his right, the seller of the option must fulfill whatever is his obligation (for a call option the seller has to deliver the asset to the buyer of the option and for a put option the seller has to receive the asset from the buyer of the option). An option can be exercised at the expiry of the contract period (which is known as **European option contract**) or anytime up to the expiry of the contract period (termed as **American option contract**).

Swaps: Swaps are private agreements between two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts. The two commonly used swaps are:

- **Interest rate swaps:** This entails swapping only the interest related cash flows between the parties in the same currency.
- **Currency swaps:** These entail swapping both principal and interest between the parties, with the cash flows in one direction being in a different currency than those in the opposite direction.

5.3 How have the Financial Derivatives Markets developed over the years?

Financial derivatives have emerged as one of the biggest markets of the world during the past two decades. A rapid change in technology has increased the processing power of computers and has made them a key vehicle for information processing in financial markets. Globalization of financial markets has forced several countries to change laws and introduce innovative financial contracts which have made it easier for the participants to undertake derivatives transactions.

Early forward contracts in the US addressed merchants' concerns about ensuring that there were buyers and sellers for commodities. 'Credit risk', however remained a serious problem. To deal with this problem, a group of Chicago businessmen formed the Chicago Board of Trade (CBOT) in 1848. The primary intention of the CBOT was to provide a centralized location (which would be known in advance) for buyers and sellers to negotiate forward contracts. In 1865, the CBOT went one step further and listed the first 'exchange traded" derivatives contract in the US. These contracts were called 'futures contracts". In 1919, Chicago Butter and Egg Board, a spin-off of CBOT, was reorganized to allow futures trading. Its name was changed to Chicago Mercantile Exchange (CME). The CBOT and the CME remain the two largest organized futures exchanges, indeed the two largest "financial" exchanges of any kind in the world today.

The first exchange-traded financial derivatives emerged in 1970's due to the collapse of fixed exchange rate system and adoption of floating exchange rate systems. As the system broke down currency volatility became a crucial problem for most countries. To help participants in foreign exchange markets hedge their risks under

the new floating exchange rate system, foreign currency futures were introduced in 1972 at the Chicago Mercantile Exchange. In 1973, the Chicago Board of Trade (CBOT) created the Chicago Board Options Exchange (CBOE) to facilitate the trade of options on selected stocks. The first stock index futures contract was traded at Kansas City Board of Trade. Currently the most popular stock index futures contract in the world is based on S&P 500 index, traded on Chicago Mercantile Exchange. During the mid-eighties, financial futures became the most active derivative instruments generating volumes many times more than the commodity futures. Index futures, futures on T-bills and EuroDollar futures are the three most popular futures contracts traded today. Other popular international exchanges that trade derivatives are LIFFE in England, DTB in Germany, SGX in Singapore, TIFFE in Japan, MATIF in France, Eurex, etc.

Futures contracts on interest-bearing government securities were introduced in mid-1970s. The option contracts on equity indices were introduced in the USA in early 1980's to help fund managers to hedge their risks in equity markets. Afterwards a large number of innovative products have been introduced in both Exchange-traded format and the Over the Counter (OTC) format.

Box 5.2: History of Derivative Trading at NSE

The derivatives trading on the NSE commenced on 12th June 2000, with futures trading on NIFTY 50 Index. Subsequent trading in index options and options on individual securities commenced on 4th June 2001 and 2nd July 2001. Single stock futures were launched on 9th November 2001. Ever since the product base has increased to include trading in futures and options on CNX IT Index, Bank NIFTY Index, NIFTY Midcap 50 Indices, etc. Today, both in terms of volume and turnover, NSE is the largest derivatives exchange in India. The derivatives contracts have a maximum of 3-month expiration cycles except for a long dated NIFTY Options contract which has a maturity of 5 years. Three contracts are available for trading, with 1 month, 2 months and 3 months to expiry. A new contract is introduced on the next trading day following the expiry of the near month contract.

The OTC derivatives have grown faster than the exchange-traded contracts in the recent years.

Table 5.2: Spectrum of Derivatives Contract worldwide

Underlying Asset	Type of Derivative Contract				
	Exchange-traded Futures	Exchange-traded Options	OTC Swap	OTC Forward	OTC Option
Equity	Indexfuture Stockfuture	Index option	Equity swap	Back-to-back repo agreement	Stock options Warrants
Interest rate	Interest rate futures linked to MIBOR	Options on futures	Interest rate swaps	Forward rate agreement	Interest rate caps, floors & collars. Swaptions

Underlying Asset	Type of Derivative Contract				
	Exchange-traded Futures	Exchange-traded Options	OTC Swap	OTC Forward	OTC Option
Credit	Bondfuture	Option on Bond future	Credit default swap Total return swap	Repurchase agreement	Credit default option
Foreign exchange	Currency future	Option on currency future	Currency swap	Currency forward	Currency option

The above list is not exhaustive. Several new and innovative contracts have been launched over the past decade around the world including option contracts on volatility indices.

5.4 Who are the participants in a Derivatives Market?

As with the regular financial markets, derivatives markets have the following participants:

- **Stock Exchange:** Where the derivatives are created and traded.
- **Investors**: Investors in derivatives could be retail investors, institutional investors, banks, corporates. Each investor has different objectives of investing in derivatives. The types of investors are detailed below.
- **Regulatory Authorities**: They ensure smooth functioning of the markets and ensures fair practices are being followed by all participants. SEBI regulates the equity derivative markets, RBI the interest rate and currency derivative markets and FMC (Forward Markets Commission) the commodity markets. FMC is now merged with SEBI, and hence SEBI overlooks both parts of the derivative markets.
- **Others**: Other participants such as Clearing and settlement agencies, credit rating agencies, investor grievances etc are shared between the financial markets and the derivatives markets.

Types of Investors:

The derivatives market is similar to any other financial market and has following three broad categories of investors:

- **Hedgers:** These are investors with a present or anticipated exposure to the underlying asset which is subject to price risks. Hedgers use the derivatives markets primarily for price risk management of assets and portfolios. Banks, treasury of companies etc fall under this category.
- **Speculators:** These are individuals who take a view on the future direction of the markets. They take a view whether prices would rise or fall in future and accordingly buy or sell futures and options to try and make a profit from the future price movements of the underlying asset. Retail investors who invest for the purpose of making profits on gains fall under this category.
- **Arbitrageurs:** They take positions in financial markets to earn riskless profits. The arbitrageurs take

short and long positions in the same or different contracts at the same time to create a position which can generate a riskless profit. Institutional players, proprietary dealers may fall under this category.

5.5 What are the economic functions of the Derivatives Market?

The derivatives market performs a number of economic functions. In this section, we discuss some of them.

Prices in an organized derivatives market reflect the perception of the market participants about the future and lead the prices of underlying to the perceived future level. The prices of derivatives converge with the prices of the underlying at the expiration of the derivative contract. Thus, derivatives help in discovery of future as well as current prices.

The derivatives market helps to transfer risks from those who have them but do not like them to those who have an appetite for them.

Derivatives, due to their inherent nature, are linked to the underlying cash markets. With the introduction of derivatives, the underlying market witnesses higher trading volumes. This is because of participation by more players who would not otherwise participate for lack of an arrangement to transfer risk.

Speculative trades shift to a more controlled environment in derivatives market. In the absence of an organized derivatives market, speculators trade in the underlying cash markets. Margining, monitoring and surveillance of the activities of various participants become extremely difficult in these kinds of mixed markets.

An important incidental benefit that flows from derivatives trading is that it acts as a catalyst for new entrepreneurial activity. The derivatives have a history of attracting many bright, creative, well-educated people with an entrepreneurial attitude. They often energize others to create new businesses, new products and new employment opportunities, the benefit of which are immense.

In a nut shell, derivatives markets help increase savings and investment in the long run. A key aspect of use of derivatives is Leverage, which allows investors to actually transact in higher amounts than what they are investing. Transfer of risk also enables market participants to expand their volume of activity.

5.6 What are Interest Rates?

Interest rate is the return on any equity or debt investment. Interest rates can be discrete or continuous. When people invest in financial markets (such as equity shares), returns on assets change continuously. Here, we find that continuous compounding of returns (the interest rate on equity) takes place. On the other hand a fixed deposit is discretely compounded and the frequency could be from annual to quarterly to daily. A continuously compounded investment will always give higher returns than a discretely compounded investment, irrespective of frequency of compounding, for the same investment period.

Interest rates are always quoted in percentage terms on per annum basis. However, they also indicate the frequency along with the per annum rates.

Example: The statement that interest rate on a given deposit is equal to 10% per annum implies that the deposit provides an interest rate of 10% on an annually compounded basis (using the formula $\mathbf{A=P*(1+r/t)^t}$) where P is the principal, r is the rate of interest and t is the time.

Thus, if Rs 100 is deposited in a fixed deposit it would give a return of Rs 100*(1+0.1) = Rs 110.

However, the final amount will be different if the compounding frequency changes. For instance, if the compounding frequency is changed to semi-annual and the rate of interest on Rs.100 is 10% then the amount on maturity would be Rs. 110.250 (calculated as 100*(1+0.1/2) ^ 2).

The returns on investment are influenced by the rate of interest and the compounding frequency. Higher the interest rate and higher the compounding frequency, higher the returns on investment!

The Table 5.3 below shows the change in amount when the same interest rate is compounded more frequently i.e., from annual to daily and finally continuous compounding.

Table 5.3: Interest Rate and Compounding Frequency

Principal (in Rs.)	Interest Rate (%)	Compounding Frequency	Calculation	Amount in one year (in Rs.)
100	10%	Annual	100(1+10%)	110.000
100	10%	Semi Annual	$100[1+(10\%/2)]^2$	110.250
100	10%	Quarterly	$100[1+(10\%/4)]^4$	110.381
100	10%	Monthly	$100[1+(10\%/12)]^{12}$	110.471
100	10%	Daily	$100[1+(10\%/365)]^{365}$	110.516
100	10%	Continuously	$100 * e^{(10\% * 1)}$	110.517

It should be noted that daily compounding is the new norm for calculating savings accounts balances by banks in India (starting from 1st April 2010). The continuous compounding is done by multiplying the principal with ert where r is the rate of interest and t the time period. e is exponential function which is equal to 2.718.

Illustration 5.1

What is the equivalent rate for continuous compounding for an interest rate which is quoted:

* 8% per annum semi-annual compounding?
* 8% per annum annual compounding?

Solution:

2 * ln (1+0.08/2) = 0.078441 = 7.844%
ln (1+.08) = 0.07696 = 7.696%

Illustration 5.2

A bank quotes you an interest rate of 10% per annum with quarterly compounding. What is the equivalent rate when it is:

* Continuous Compounding
* Annual Compounding

Solution:

4* ln (1+0.10/4) = 0.098770 = 9.877%
(1+0.10/4) 4 – 1 = 10.38%

Annual Compounding is also called effective annual rate calculation. By this method any given interest rate or return can be converted to its effective annual interest rate or effective annual return.

5.7 What does the Stock Index measure?

An index is a number which measures the change in a set of values over a period of time.

A stock index represents the change in value of a set of stocks which constitute the index.

More specifically, a stock index number is the current relative value of a weighted average of the prices of a pre-defined group of equities. A stock market index is created by selecting a group of stocks that are representative of the entire market or a specified sector or segment of the market. It is calculated with reference to a base period and a base index value. The beginning value or base of the index is usually set to a number such as 100 or 1000.

The main index of the NSE is the NIFTY 50. The NIFTY 50 is a well diversified 50 stock index accounting for 13 sectors of the economy. It is used for a variety of purposes such as benchmarking fund portfolios, index-based derivatives and index funds. The base value of the NIFTY, which is the benchmark broad-based index of the National Stock Exchange, was set to 1000 on the start date of November 3, 1995. Thereafter, changes in the values of the group of equities used to create the index will be reflected on this base number in weighted average percentage terms.

Broad-based market indices are meant to capture the overall behaviour of equity markets.

Stock market indices are useful for a variety of reasons. Some uses of them are:

- As a barometer for market behaviour,
- As a benchmark for portfolio performance,
- As an underlying in derivative instruments like Index futures, Index options, and
- In passive fund management by index funds/ETFs

Sectoral indices capture the behaviour of a particular sector, just as market indices capture behaviour of the overall market. For example, the Bank NIFTY / NIFTY Bank Index, which is a banking sector index of the NSE, which contains the 12 most liquid and large capitalised stocks from the banking sector which trade on the National Stock Exchange (NSE). It provides investors and market intermediaries a benchmark that captures the capital market performance of Indian banking sector.

5.8 What is the economic significance of Index Movements?

Index movements reflect the changing expectations of the stock market about future dividends of the corporate sector, just as how stock values reflect expectations of investors about a particular company. The index goes up if the stock market perceives that the prospective dividends in the future will be better than previously thought. When the prospects of dividends in the future become pessimistic, the index drops. The ideal index gives us instant picture about how the stock market perceives the future of corporate sector.

Every stock price moves for two possible reasons:

- **News about the Company** – micro economic factors (example, a product launch, or the closure of a factory, other factors specific to a company)
- **News about the Economy** – macro economic factors (example, budget announcements, changes in tax structure and rates, political news such as change of national government, other factors common to all companies in a country)

The index captures the second part, the movements of the stock market as a whole (i.e. news about the macroeconomic factors related to entire economy). This is achieved by averaging. Each stock contains a mixture of two elements - stock news and index news. When we take an average of returns on many stocks, the individual stock news tends to cancel out and the only thing left is news that is common to all stocks. The news that is common to all stocks is news about the economy. The correct method of averaging is that of taking a weighted average, giving each stock a weight proportional to various aspects like its market capitalization, price and so on.

Example: Suppose an index contains two stocks, A and B. A has a market capitalization of Rs.1000 crore and B has a market capitalization of Rs.3000 crore. Then we attach a weight of 1/4 to movements in A and 3/4 to movements in B.

We will study more on how indices are constructed and the issues therein in the next section.

5.9 What are the methods for Index Construction?

A good index is a trade-off between diversification and liquidity. A well-diversified index is more representative of the market/economy. There are however, diminishing returns to diversification. Going from 10 stocks to 20 stocks gives a sharp reduction in risk. Going from 50 stocks to 100 stocks gives very little reduction in risk. Going beyond 100 stocks gives almost zero reduction in risk. Hence, there is little to gain by

diversifying beyond a point. The more serious problem lies in the stocks which are included into an index when it is broadened. If the stock is illiquid, the observed prices yield contaminated information and actually worsen an index.

The computational methodology followed for construction of stock market indices are:

- Free Float Market Capitalization Weighted Index
- Market Capitalization Weighted Index
- Price Weighted Index

Free Float Market Capitalisation Weighted Index: The free float factor (Investible Weight Factor), for each company in the index is determined based on the public shareholding of the companies as disclosed in the shareholding pattern submitted to the stock exchange by these companies#. The Free float market capitalization is calculated in the following manner:

Free Float Market Capitalisation = Issue Size * Price * Investible Weight Factor

The Index in this case is calculated as per the formulae given below:

$$\text{Index} = \frac{\text{Free float Current Market Capitalization}}{\text{Free float Base Market Capitalization}} \times \text{Base Value}$$

The India Index Services Limited (IISL), a subsidiary of NSE Strategic Investment Corporation Limited, introduced the free float market capitalization methodology for its main four indices, viz., NIFTY 50, NIFTY 50 USD, NIFTY Next 50 and NIFTY 100. With effect from 4th May 2009 NIFTY 50 Junior and with effect from 26th June 2009, NIFTY 50, NIFTY 100 and NIFTY 50 USD are being calculated using free float market capitalization.

#The free float method excludes (i) Government holding in the capacity of strategic investor, (ii) Shares held by promoters through ADRs/GDRs, (iii) Strategic stakes by corporate bodies/Individuals /HUF, (iv) Investments under FDI Category, (V) Equity held by associate /group companies

Market Capitalisation Weighted Index: In this type of index calculation, each stock in the index affects the index value in proportion to the market value of all shares outstanding. In this the index would be calculated as per the formulae below:

$$\text{Index} = \frac{\text{Current Market Capitalization}}{\text{Base Market Capitalization}} \times \text{Base Value}$$

where,

Current market capitalization - Sum of (current market price * Issue size) of all securities in the index.

Base market capitalization - Sum of (market price * issue size) of all securities as on base date.

Price Weighted Index: In a price weighted index each stock influences the index in proportion to its price per share. The value of the index is generated by adding the prices of each of the stocks in the index and

dividing then by the total number of stocks. Stocks with a higher price will be given more weight and, therefore, will have a greater influence over the performance of the index.

5.10 What are the desirable attributes of an Index?

A good market index should have the following attributes:

- It should capture the behaviour of a large variety of different portfolios in the market.
- The stocks included in the index should be highly liquid.
- It should be professionally maintained.
- A single stock or a small group of stocks in the index should not move the index significantly. Otherwise, the shifts in other stocks will not be sufficiently captured in the index

In brief the level of diversification of a stock index should be monitored on a continuous basis. It should ensure that the index is not vulnerable to speculation. Stocks with low trading volume or with very tight bid ask spreads are illiquid and should not be a part of index. The index should be managed smoothly without any dramatic changes in its composition. Box 5.3 describes how NIFTY 50 addresses these issues.

The NIFTY 50

The NIFTY 50 is a float-adjusted market capitalization weighted index derived from economic research. It was designed not only as a barometer of market movement but also to be a foundation of the new world of financial products based on the index like index futures, index options and index funds. A trillion calculations were expended to evolve the rules inside the NIFTY 50 index. The results of this work are remarkably simple: (a) the correct size to use is 50, (b) stocks considered for the NIFTY 50 must be liquid by the 'impact cost' criterion, (c) the largest 50 stocks that meet the criterion go into the index.

The research that led up to NIFTY 50 is well-respected internationally as a pioneering effort in better understanding how to make a stock market index. The NIFTY 50 covers 21 sectors of the Indian economy and offers investment managers exposure to the Indian market in one efficient portfolio. It is used for a variety of purposes, such as benchmarking fund portfolios, index-based derivatives and index funds.

The NIFTY is uniquely equipped as an index for the index derivatives market owing to its low market impact cost and (b) high hedging effectiveness. The good diversification of NIFTY generates low initial margin requirement.

What is Impact Cost?

Impact cost represents the cost of executing a transaction in a given stock, for a specific predefined order size, at any given point of time. Impact cost is a practical and realistic measure of market liquidity; it is closer to the true cost of execution faced by a trader in comparison to the bid-ask spread. In mathematical terms it is the percentage markup observed while buying / selling the desired quantity of a stock with reference to its

ideal price (best buy + best sell) / 2.

Example A:

Order Book Snapshot			
Buy Quantity	**Buy Price**	**Sell Quantity**	**Sell Price**
1000	98	1000	99
2000	97	1500	100
1000	96	1000	101

To buy 1500 shares

$$\text{Ideal Price} = \frac{99 + 98}{2} = 98.5$$

$$\text{Actual Price} = \frac{(1000 \times 99) + (500 \times 100)}{1500} = 99.33$$

$$\text{Impact Cost} = \frac{99.33 - 98.5}{98.5} \times 100 = 0.84\%$$

(for 1500 shares)

5.11 What are the applications of Index?

Besides serving as a barometer of the economy/market, the index also has other applications in finance. Various products have been designed based on the indices such as the index derivatives, index funds* and the exchange traded funds#. We here restrict our discussion to only index derivatives.

5.11.1 What are Index Derivatives?

Index derivatives are derivative contracts which have the index as the underlying. The most popular index derivative contracts the world over are index futures and index options. NSE's market index, the NIFTY 50 was scientifically designed to enable the launch of index-based products like index derivatives* and index funds.

Following are the reasons of popularity of index derivatives:

- Institutional and large equity-holders need portfolio-hedging facility. Index- derivatives are more suited to them and more cost-effective than derivatives based on individual stocks. Pension funds in the US are known to use stock index futures for risk hedging purposes.
- Index derivatives offer ease of use for hedging any portfolio irrespective of its composition.

- Stock index is difficult to manipulate as compared to individual stock prices, more so in India, and the possibility of cornering is reduced. This is partly because an individual stock has a limited supply, which can be cornered.
- Stock index, being an average, is much less volatile than individual stock prices. This
- implies much lower capital adequacy and margin requirements.
- Index derivatives are cash settled, and hence do not suffer from settlement delays and problems related to bad delivery, forged/fake certificates.
- It is easier for retail investors to understand indices and track their movements, than pick stocks and track them. Hence, index derivatives are more popular amongst retail investors than stock indices.

Index futures and options are traded on the stock exchanges in India. The National Stock Exchange of India Limited (NSE) commenced trading in derivatives with index futures on 12th June 2000. The futures contracts on the NSE are based on the NIFTY 50. The exchange introduced trading on index options based on the NIFTY 50 on 4th June 4 2001. Additionally, exchange traded derivatives contracts linked to NIFTY 50 are traded at Singapore Exchange Ltd. (SGX), Chicago Mercantile Exchange Inc. (CME) and Osaka Exchange Inc. (OSE).

- An index fund is a fund that tries to replicate the index returns. It does so by investing in index stocks in the proportions in which these stocks exist in the index.
- ETFs are just what their name implies: baskets of securities that are traded, like individual stocks, on an exchange. Unlike regular open-end mutual funds, ETFs can be bought and sold throughout the trading day like any stock.

Points to Remember

Interest rates are the return on any investment to an investor. In case of funds lent, it is the return to the lender on account of the risk taken by lending the funds to the borrower. Interest rates may be fixed or floating. They may also be continuous or discreet in frequency. The frequency of the interest rate influences the returns on the investment, i.e., higher the frequency, higher the returns, sum, period and rate of interest being the same.

Indices are a broad market measure tool composed of representative stocks that map market behavior. They may be either broad market indices or sectoral indices, i.e. representative of a single sector. The important characteristics to be borne in mind while composing an index is that the index should truly mirror the performance of the market it represents, the stocks it is composed of must be liquid and no single / set of stocks must significantly move the index.

Index derivatives and Interest rate derivatives are traded on both the major stock exchanges in India.

Key Words

Derivatives, Derivative contracts, Forwards, Futures, Swaps, Hedgers, speculators, arbitrageurs, Interest Rates, Stock Index, Index Construction.

Questions for Practice

1) The Securities Contract Regulation Act came into practice in .....?
   a) 1950
   b) 1956
   c) 1976
   d) 1992

2) Derivatives can be classified in which of the ways?
   a) On the basis of the nature of the derivative
   b) On the basis of the Underlying asset
   c) On the basis of the place of trading
   d) All of the above

3) These derivatives comprise of an assured occurrence in the future. Which is it?
   a) Forward Commitment
   b) Forwards
   c) Contingent Claim
   d) Futures

4) These are promises to deliver an asset at a pre- determined date in future at a predetermined price?
   a) Futures Contracts
   b) Option Contracts
   c) Forward Contracts
   d) Swaps

5) Which of these is/ are type(s) of Investor(s)?
   a) Speculators
   b) Arbitrageurs.
   c) Hedgers
   d) All of the above

6) Which is the main index of the NSE?
   a) Sensex 30
   b) SNP 500
   c) **NIFTY 50**
   d) SGX 100

7) Which of these is/ are use(s) of Stock Market Indices?
   a) As a benchmark for portfolio performance
   b) In passive fund management by index funds/ETFs
   c) As a barometer for market behaviour
   d) All of the above

8) A good market index should have which of the following attributes?
   a) It should be professionally maintained
   b) The stocks included in the index should be highly liquid
   c) **Both a & b**
   d) None of the above

9) The Nifty 50 covers ..... sectors of the Indian economy?
   a) 10
   b) 21
   c) 25
   d) 50

10) Among these which of them is the computational methodology followed for construction of stock market indices?
   a) Market Capitalization Weighted index
   b) Price Weighted Index
   c) Free Float Market Capitalization Weighted Index
   d) All of the above

Chapter 6: Futures Contracts, Mechanism and Pricing

In this Chapter, you will learn:

- Forward Contracts
- Limitations of Forward Markets
- Distinction between Futures and Forward Contracts
- Futures Payoffs
- Pricing Futures & Pricing Stock Futures
- Hedging using Stock Index Futures
- Option Terminology

In recent years, derivatives have become increasingly important in the field of finance. As we saw in the first chapter, futures and options are now actively traded on many exchanges, forward contracts are popular on the OTC market. We shall first discuss about forward contracts along with their advantages and limitations. We then introduce futures contracts and describe how they are different from forward contracts. The terminology of futures contracts along with their trading mechanism has been discussed next.

The key idea of this Chapter however is the pricing of Futures contracts. The concept of cost of carry for calculation of the forward price has been a very powerful concept. One would realize that it essentially works as a parity condition and any violation of this principle can lead to arbitrage opportunities. The chapter explains mechanism and pricing of both Index Futures and Futures contracts on individual stocks.

6.1 What are Forward Contracts?

A forward contract is an agreement to buy or sell an asset on a specified date for a specified price. Hence, it's a forward commitment type of derivative. One of the parties to the contract assumes a **long position (buy position)** and agrees to buy the underlying asset on a certain specified future date for a certain specified price. The other party assumes a **short position (sell position)** and agrees to sell the asset on the same date for the same price. Other contract details like delivery date, price and quantity are negotiated bilaterally by the parties to the contract. The forward contracts are normally traded outside the exchanges, in the OTC market.

The salient features of forward contracts are as given below:

- They are bilateral contracts and hence exposed to counter-party risk. Counter-party risk is the risk that the other party to the contract may not honour their part of the agreement. This is significant especially in case of Forward contracts as it can be entered into between any 2 individuals / companies / institutions, and it is not overseen by the exchanges and other regulatory bodies. Standard contract laws apply to these contracts though.

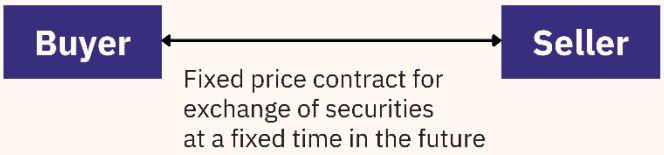
- Each contract is custom designed, and hence is unique in terms of contract size, expiration date and the asset type and quality. Even the delivery and storage terms may be negotiated mutually and built into the contract. This gives higher flexibility to the parties to the contract, which is not true in case of Futures, as we will see later.

- The contract price is generally not available in public domain as these contracts are privately negotiated.
- On the expiration date, the contract has to be settled by delivery of the asset. It may also be cash-settled, as agreed by the parties at the inception of the contract. In cash settlement, the parties pay / receive the loss or gain arising from the contract to them in cash to the other party.
- If the party wishes to reverse the contract, it has to compulsorily go to the same counter- party, which often results in high prices being charged. This is because, since these contracts are highly customized, it would be very difficult to find another counterparty with the exact same terms as the original contract to enter into an equal and opposite transaction.

Forward Contract illustration:

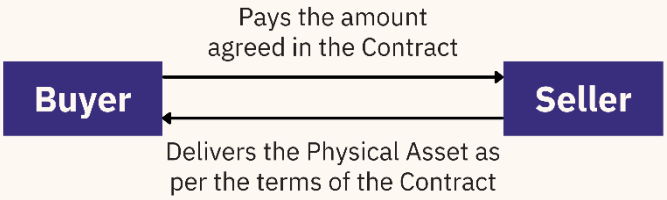
The working of a forward / futures contract can be depicted as follows:

At the beginning of the transaction:



No money or asset is exchanged at this juncture

On expiry of the Futures contract, i.e., the fixed date in the future as per the contract:



6.2 What are the limitations of Forward Markets?

Forward markets world-wide are posed by several problems:

- **Lack of centralization of trading** – Each contract is bilaterally negotiated and is not listed on any centralized platform, like a stock exchange
- **Illiquidity** – due to the customized nature of each contract, it would be difficult to trade it in the open market as specifications would be different from one investor to another.
- **Counterparty risk** – risk of default by any party to the transaction

In the first two of these, the basic problem is that of too much flexibility and generality. The forward market is like a real estate market, in which any two consenting adults can form contracts against each other. This often makes them design the terms of the deal which are convenient in that specific situation, but makes the contracts non-tradable.

Counterparty risk is quite high in case of Forward contracts. When one of the two sides to the transaction declares bankruptcy, the other suffers. When forward markets trade standardized contracts, though it avoids the problem of illiquidity, still the counterparty risk remains a very serious issue.

Futures contracts aim to disperse some of these issues with forward contracts.

6.3 What are Futures Contracts?

A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price. But unlike forward contracts, the Futures contracts are standardized and exchange traded. To facilitate liquidity in the futures contracts, the exchange specifies certain standard features of the contract. The futures contracts are created by the Stock exchange and made available for trade in the open market, It is a standardized contract with standard underlying instrument, a standard quantity and quality of the underlying instrument that can be delivered, (or which can be used for reference purposes in settlement) and a standard timing of such settlement. A futures contract may be offset prior to maturity by entering into an equal and opposite transaction. The standardized items in a Futures contract are:

- Quantity of the Underlying
- Quality of the Underlying
- The Date and the Month of Delivery
- The Units of Price Quotation and Minimum Price Change
- Location of Settlement

6.4 What is the distinction between Futures and Forwards Contracts?

Forward contracts are often confused with futures contracts. The confusion is primarily because both serve essentially the same economic functions of allocating risk in the presence of future price uncertainty. However, futures are a significant improvement over the forward contracts as they eliminate counterparty risk and offer more liquidity. Table 5.1 lists the distinction between the forwards and Futures contracts.

Table 6.1: Distinction between Futures and Forwards

Futures	Forwards
Trade on an organized exchange	OTC in nature
Standardized contract terms	Customised contract terms
More liquid	Less liquid
Requires margin payments	No margin payment
Follows daily settlement	Settlement happens at end of period
Lower counter-party risk	High counter-party risk

6.5 List the various Futures Terminologies

- **Long Position:** The investor who buys the contract, and therefore the underlying asset, is said to assume a long position in the transaction
- **Short Position:** The investor, who sells the contract, and therefore the underlying asset, is said to assume a short position in the transaction. These are terms also used in case of other derivative contracts.
- **Spot Price:** The price at which an underlying asset trades in the spot market.
- **Futures Price:** The price that is agreed upon at the time of the contract for the delivery of an asset at a specific future date.
- **Contract Cycle:** It is the period over which a contract trades. The index Futures contracts on the NSE have one-month, two-month and three-month expiry cycles which expire on the last Thursday of the month. Thus, a January expiration contract expires on the last Thursday of January and a February expiration contract ceases trading on the last Thursday of February. On the Friday following the last Thursday, a new contract having a three-month expiry is introduced for trading.
- **Expiry Date:** Is the date on which the final settlement of the contract takes place.
- **Contract Size:** The amount of asset that has to be delivered under one contract. This is also called as the lot size.
- **Basis:** Basis is defined as the Futures price minus the spot price. There will be a different basis for each delivery month for each contract. In a normal market, basis will be positive. This reflects that Futures prices normally exceed spot prices.
- **Cost of Carry:** Measures the storage cost plus the interest that is paid to finance the Asset less the income earned on the asset.
- **Initial Margin:** The amount that must be deposited in the margin account at the time a Futures contract is first entered into is known as initial margin.
- **Marking-to-Market:** In the Futures market, at the end of each trading day, the margin account is adjusted to reflect the investor's gain or loss depending upon the Futures closing price. This is called marking-to-market.
- **Maintenance Margin:** Investors are required to place margins with their trading members before they are allowed to trade. If the balance in the margin account falls below the maintenance margin, the investor receives a margin call and is expected to top up the margin account to the initial margin level before trading commences on the next day.

6.6 What is the difference between Trading Underlying and Trading Single Stock Futures?

The single stock futures market in India has been a great success story. One of the reasons for the success has been the ease of trading and settling these contracts.

To trade securities, one must open a security trading account with a securities broker and a Demat account with a securities depository. Buying security involves putting up all the money upfront. With the purchase of shares of a company, the holder becomes a part owner of the company. The shareholder typically receives the rights and privileges associated with the security, which may include the receipt of dividends, invitation to the annual shareholders meeting and the power to vote. Selling securities involves buying the security before selling it. Even in cases where short selling is permitted, it is assumed that the securities broker owns

the security and then "lends" it to the trader so that he can sell it.

To trade in futures, one must open a futures trading account with a derivatives broker. Buying futures simply involves putting in the margin money. This margin money is a form of security that the broker takes from the investor for the transaction. The broker in turn has to put up margin money with the stock exchange. They enable the futures traders to take a position in the underlying security without having to open an account with a securities broker. With the purchase of futures on a security, the holder essentially makes a legally binding promise or obligation to buy the underlying security at some point in the future (the expiration date of the contract). Security futures do not represent ownership in a corporation and the holder is therefore not regarded as a shareholder. Only when on expiration of the contract he actually gets delivery of the stocks, is he considered a shareholder of the company. However, in India, all futures were cash-settled, i.e., the investor does not get physical delivery of shares on expiration of the contract. Instead, he either receives or has to pay cash equivalent to his loss / gain on account of the futures purchase as against the prevailing spot market prices. This happens on an on-going basis through a process called Mark-to-Market, defined earlier. However, from October 2019, SEBI has mandated physical settlement of all single stock futures (in a phased manner), at the end of expiry, unless their positions are squared-off. Physical delivery means that the seller has to provide delivery of the underlying stocks.

6.7 What are the Future Payoffs?

Payoff means the returns from either buying or selling a futures contract as against buying or selling the underlying asset. Payoff is positive if the position held brings profits to the holder, the payoff is negative if the position held brings losses to the holder. Futures contracts have linear or symmetrical payoffs. It implies that the losses as well as profits for the buyer and the seller of a Futures contract are unlimited. These linear payoffs are fascinating as they can be combined with options, and the underlying to generate various complex payoffs.

Payoff for Buyer of Futures: Long Futures

The payoff for a person who buys a Futures contract is similar to the payoff for a person who holds an asset. He has a potentially unlimited upside as well as a potentially unlimited downside. Take the case of a speculator who buys a two-month NIFTY index Futures contract when the NIFTY stands at 17,000.

The underlying asset in this case is the NIFTY portfolio. When the index moves up, the long Futures position starts making profits, and when the index moves down it starts making losses.

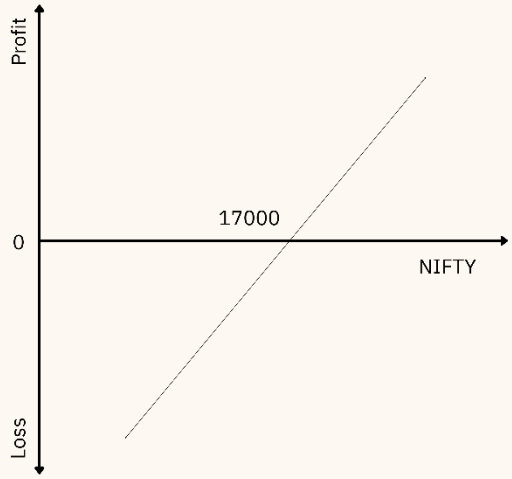


Figure 6.1: Payoff for a Buyer of NIFTY Futures

The figure 6.1 above shows the profits/losses for a long Futures position. The investor bought futures when the index was at 17,000. If the index goes up, his Futures position starts making profit. If the index falls, his Futures position starts showing losses.

Payoff for Seller of Futures: Short Futures

The payoff for a person who sells a futures contract is similar to the payoff for a person who shorts an asset. He has a potentially unlimited upside as well as a potentially unlimited downside. Take the case of a speculator who sells a two-month NIFTY index futures contract when the NIFTY stands at 17,000. The underlying asset in this case is the NIFTY portfolio. When the index moves down, the short futures position starts making profits, and when the index moves up, it starts making losses.

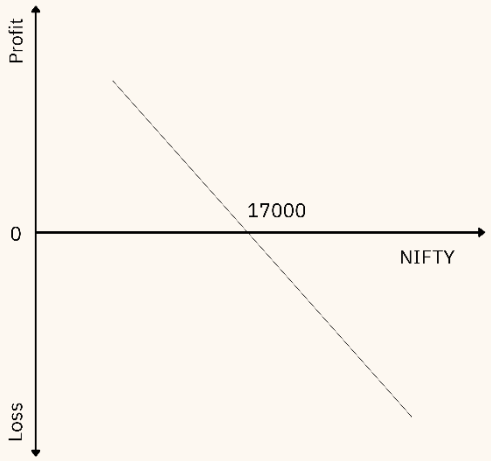


Figure 6.2: Payoff for a Seller of NIFTY Futures

The figure 6.2 shows the profits/losses for a short Futures position. The investor sold futures when the index was at 17,000. If the index goes down, his Futures position starts making profit. If the index rises, his futures position starts showing losses.

6.8 How to price Future Contracts?

Pricing of futures contract is very simple. The important concept here is the **Cost of Carry** logic. Simply put, cost of carry is the cost incurred when you hold a certain investment position. This includes interest costs, margin expenses, financial expenses for advisors, fees etc. In case of commodities, it also includes cost of storage, insurance and so on. Essentially, it encompasses all such costs incurred to hold a particular position in Futures.

Using the cost-of-carry logic, we calculate the fair value of a futures contract. Every time the observed price deviates from the fair value, arbitragers would enter into trades to capture the arbitrage profit. This in turn would push the Futures price back to its fair value. The cost of carry model used for pricing Futures is given as follows:

$$F = Se^{rT}$$

where:

S Price in the Spot Market

r Cost of financing (using continuously compounded interest rate)

T Time till expiration in years

e 2.71828

Example: Security XYZ Ltd trades in the spot market at Rs. 1150. Money can be invested at 11% p.a. The fair value of a one-month Futures contract on XYZ is calculated as follows:

$$F = Se^{rt}$$

$$= 1150 * e^{0.11 \times (1/12)}$$

$$F = 1160$$

6.8.1 How to price Equity Index Futures?

A futures contract on the stock market index gives its owner the right and obligation to buy or sell the portfolio of stocks characterized by the index. Stock index futures are cash settled; there is no delivery of the underlying stocks. In their short history of trading, index futures have had a great impact on the world's securities markets. Its existence has revolutionized the art and science of institutional equity portfolio management.

The main differences between commodity and equity index futures are that:

- There are no costs of storage involved in holding equity.
- Equity comes with a dividend stream, which is a negative cost if you are long the stock and a positive cost if you are shorts the stock

Therefore, Cost of carry = Financing cost – Dividends. Thus, a crucial aspect of dealing with equity futures as opposed to commodity futures is an accurate forecasting of dividends. The better the forecast of dividend offered by a security, the better is the estimate of the Futures price.

6.8.2 How to price Index Futures given expected Dividend amount?

The pricing of index futures is based on the cost-of-carry model, where the carrying cost is the cost of financing the purchase of the portfolio underlying the index, minus the present value of dividends obtained from the stocks in the index portfolio. This has been illustrated in the example below.

Illustration:

NIFTY Futures trade on NSE as one, two and three-month contracts. Money can be borrowed at a rate of 10% per annum. What will be the price of a new two-month Futures contract on NIFTY?

- Let us assume that ABC Ltd. will be declaring a dividend of Rs.20 per share after 15 days of purchasing the contract.
- Current value of NIFTY is 17,000 and NIFTY trades with a multiplier of 50.
- Since NIFTY is traded in multiples of 50, value of the contract is 50*17000 = Rs.8,50,000.
- If ABC Ltd. has a weight of 7% in NIFTY, its value in NIFTY is Rs. 59,500 i.e., (8,50,000 * 0.07).
- If the market price of ABC Ltd. is Rs. 140, then a traded unit of NIFTY involves 425 shares of ABC Ltd. i.e. (59,500/140).
- To calculate the futures price, we need to reduce the cost-of-carry to the extent of dividend received. The amount of dividend received is Rs. 8,500 i.e. (420*20). The dividend is received 15 days later and hence compounded only for the remainder of 45 days. To calculate the futures price we need to compute the amount of dividend received per unit of NIFTY. Hence, we divide the compounded dividend figure by 50.

$$F = \left(17000 \times e^{10\% \times (60/365)}\right) - \left(\frac{425 \times 20 \times e^{10\% \times (45/365)}}{50}\right)$$

F = (17000*2.71828^(0.1*(60/365))) – ((425*20*2.71828^(0.1*(45/365)))/50)

= 17109.65

6.8.3 How to price Index Futures given expected Dividend Yield?

If the dividend flow throughout the year is generally uniform, i.e., if there are few historical cases of clustering of dividends in any particular month, it is useful to calculate the annual dividend yield.

$$F = Se^{(r-q)*T}$$

where,

F Futures Price
S Spot Index Value
r Cost of Financing
q Expected Dividend Yield
T Holding Period

Example:

A two-month futures contract trades on the NSE. The cost of financing is 10% and the dividend yield on NIFTY is 2% annualized. The spot value of NIFTY 17,000. What is the fair value of the futures contract?

Fair value = 17000 * e^(0.1-0.02)*(60/365) = Rs. 17225.04

The cost-of-carry model explicitly defines the relationship between the futures price and the related spot price. As we know, the difference between the spot price and the futures price is called the Basis.

Nuances:

As the date of expiration comes near, the basis reduces – there is a convergence of the Futures price towards the spot price. On the date of expiration, the basis is zero. If it is not, then there is an arbitrage opportunity. Arbitrage opportunities can also arise when the basis (difference between spot and Futures price) or the spreads (difference between prices of two Futures contracts) during the life of a contract are incorrect. At a later stage we shall look at how these arbitrage opportunities can be exploited.

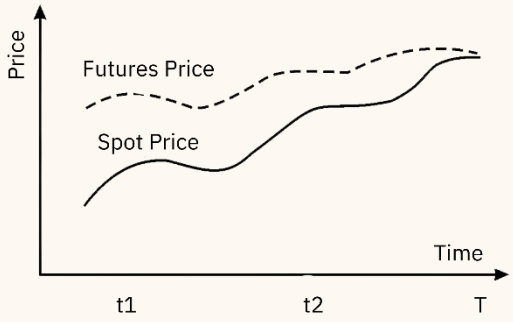


Figure 6.3: Variation of basis over time

The figure 6.3 above shows how basis changes over time. As the time to expiration of a contract reduces, the basis reduces. Towards the close of trading on the day of settlement, the futures price and the spot price converge. The closing price for the June 28 futures contract is the closing value of NIFTY on that day.

6.8.4 How to price Stock Futures?

A futures contract on a stock gives its owner the right and obligation to buy or sell the stocks. Like index futures, stock futures are also cash settled; there is no delivery of the underlying stocks. Just as in the case of index futures, the main differences between commodity and stock futures are that:

- There are no costs of storage involved in holding stock.
- Stocks come with a dividend stream, which is a negative cost if you are long the stock and a positive cost if you are short the stock.

Therefore, Cost of carry = Financing cost – Dividends. Thus, a crucial aspect of dealing with stock Futures as opposed to commodity Futures is an accurate forecasting of dividends. The better the forecast of dividend offered by a security, the better is the estimate of the futures price.

6.8.5 How to price Stock Futures when no Dividend expected?

The pricing of stock futures is also based on the cost-of-carry model, where the carrying cost is the cost of financing the purchase of the stock, minus the present value of dividends obtained from the stock. If no dividends are expected during the life of the contract, pricing futures on that stock involves multiplying the

spot price by the cost of carry. It has been illustrated in the example given below:

Example:

XYZ Ltd.'s futures trade on NSE as one, two and three-month contracts. Money can be borrowed at 10% per annum. What will be the price of a unit of new two-month Futures contract on XYZ Ltd. if no dividends are expected during the two-month period?

Assume that the spot price of XYZ Ltd. is Rs. 228. Thus, Futures price $F = 228 * e^{0.1*(60/365)}$

$= Rs. 231.90$

6.8.6 How to price Stock Futures when Dividends are expected?

When dividends are expected during the life of the futures contract, pricing involves reducing the cost of carry to the extent of the dividends. The net carrying cost is the cost of financing the purchase of the stock, minus the present value of dividends obtained from the stock. This is explained in the illustration below:

Example:

XYZ Ltd. futures trade on NSE as one, two and three-month contracts. What will be the price of a unit of new two-month futures contract on XYZ Ltd. if dividends are expected during the two-month period?

Let us assume that XYZ Ltd. will be declaring a dividend of Rs. 10 per share after 15 days of purchasing the contract. Assume that the market price of XYZ Ltd. is Rs. 140.

To calculate the futures price, we need to reduce the cost-of-carry to the extent of dividend received. The amount of dividend received is Rs.10. The dividend is received 15 days later and hence compounded only for the remainder of 45 days.

Thus, futures price

$F = 140 * e^{0.1 * 60/365} - 10 * e^{0.1*45/35} = Rs.132.20$

6.9 What is Beta (β)?

Beta measures the sensitivity of stocks responsiveness to market factors. Generally, it is seen that when markets rise, most stock prices rise and vice versa. Beta measures how much a stock would rise or fall if the market rises / falls. The market is indicated by the index, say NIFTY 50.

The index has a beta of one. A stock with a beta of 1.5% will rise / fall by 1.5% when the NIFTY 50 rises / falls by 1%. Which means for every 1% movement in the NIFTY, the stock will move by 1.5% (β = 1.5%) in the same direction as the index. A stock with a beta of - 1.5% will rise / fall by 1.5% when the NIFTY 50 falls / rises by 1%. Which means for every 1% movement in the NIFTY, the stock will move by 1.5% (β = 1.5%) in the opposite direction as the index. Similarly, Beta of a portfolio, measures the portfolios responsiveness to market movements. In practice given individual stock betas, calculating portfolio beta is simple. It is nothing

but the weighted average of the stock betas. If the index moves up by 10 percent, the portfolio value will increase by 10 percent. Similarly, if the index drops by 5 percent, the portfolio value will drop by 5 percent. A portfolio with a beta of two, responds more sharply to index movements. If the index moves up by 10 percent, the value of a portfolio with a beta of two will move up by 20 percent. If the index drops by 10 percent, the value of a portfolio with a beta of two will fall by 20 percent. Similarly, if a portfolio has a beta of 0.75, a 10 percent movement in the index will cause a 7.5 percent movement in the value of the portfolio.

6.10 What is the numerical illustration of application of Stock Futures?

Futures are popularly used as a risk management tool in companies, banks, public departments and investors. They are also used for speculation and making profits out of market movements. There are various strategies which can be adopted for achieving these objectives. Let us look at each of them now.

6.10.1 What is Hedging: Long Security, Sell Futures?

Futures can be used as a risk-management tool. Investors can hedge their risk of making losses in transactions by simultaneously taking opposite positions in the spot and Futures market.

For example, an investor who holds the shares of a company sees the value of his security falling from Rs. 450 to Rs. 390. In the absence of stock futures, he would either suffer the discomfort of a price fall or sell the security in anticipation of a market upheaval. With security Futures he can minimize his price risk. All he needs to do is enter into an offsetting stock futures position, in this case, take on a short futures position.

Assume that the spot price of the security which he holds is Rs. 390. Two-month futures cost him Rs. 402. For this he pays an initial margin. Now if the price of the security falls any further, he will suffer losses on the security he holds. However, the losses he suffers on the security will be offset by the profits he makes on his short futures position.

Take for instance that the price of his security falls to Rs.350. The fall in the price of the security will result in a fall in the price of futures. Futures will now trade at a price lower than the price at which he entered into a short futures position. Hence his short Futures position will start making profits. The loss of Rs. 40 incurred on the security he holds, will be made up by the profits made on his short Futures position.

6.10.2 What is Speculation: Bullish Security, Buy Futures?

Investors can speculate on underlying assets by investing in the futures instead of the actual security. Here, leverage helps them by increasing the total exposure to the asset as compared to what they could take in the spot market.

Take the case of a speculator who has a view on the direction of the market. He would like to trade based on this view. He believes that a particular security that trades at Rs. 1000 is undervalued and expect its price to go up in the next two-three months. How can he trade based on this belief? In the absence of a derivative product, he would have to buy the security and hold on to it. Assume that he buys 100 shares which cost him one lakh rupees. His hunch proves correct and two months later the security closes at Rs. 1010. He makes a profit of Rs. 1000 on an investment of Rs. 100,000 for a period of two months. This works out to an annual return of 6 percent.

Today a speculator can take exactly the same position on the security by using futures contracts. Let us see how this works. The security trades at Rs.1000 and the two-month futures trades at 1006. Just for the sake of comparison, assume that the minimum contract value is 100,000. He buys 100 security Futures for which he pays a margin of Rs. 20,000. Two months later the security closes at 1010. On the day of expiration, the Futures price converges to the spot price and he makes a profit of Rs. 400 on an investment of Rs. 20,000. This works out to an annual return of 12 percent. Because of the leverage they provide, security futures form an attractive option for speculators.

6.10.3 What is Speculation: Bearish Security, Sell Futures?

In the previous section we saw speculation where the investor believed the security would increase in value over a period of time. Now consider the opposite scenario where the investor believes that a particular security is over-valued and is likely to see a fall in price. How can he trade based on his opinion? In the absence of a derivative product, there wasn't much he could do to profit from his opinion. Today all he needs to do is sell stock futures.

Let us understand how this works. Simple arbitrage ensures that Futures on individual securities move correspondingly with the underlying security, as long as there is sufficient liquidity in the market for the security. If the security price rises, so will the futures price. If the security price falls, so will the Futures price. Now take the case of the trader who expects to see a fall in the price of ABC Ltd. He sells one two-month contract of futures on ABC at Rs. 240 (each contact for 100 underlying shares). He pays a small margin on the same. Two months later, when the futures contract expires, ABC closes at 220. On the day of expiration, the spot and the futures price converge. He has made a clean profit of Rs.20 per share. For the one contract that he bought, this works out to be Rs. 2000.

6.10.4 What is Arbitrage: Overpriced Futures: Buy Spot, Sell Futures?

As we discussed earlier, the cost-of-carry ensures that the Futures price stay in tune with the spot price. Whenever the futures price deviates substantially from its fair value, arbitrage opportunities arise.

If you notice that futures on a security that you have been observing seem overpriced, how can you cash in on this opportunity to earn riskless profits? Say for instance, ABC Ltd. trades at Rs. 1000. One-month ABC Futures trade at Rs. 1025 and seem overpriced. As an arbitrageur, you can make riskless profit by entering into the following set of transactions.

- On day one, borrow funds, buy the security on the cash/spot market at Rs. 1000.
- Simultaneously, sell the futures on the security at Rs. 1025.
- Take delivery of the security purchased and hold the security for a month.
- On the futures expiration date, the spot and the Futures price converge. Now unwind the position.
- Say the security closes at Rs. 1015. Sell the security.
- Futures position expires with profit of Rs. 10.
- The result is a riskless profit of Rs.15 on the spot position and Rs.10 on the futures position.
- Return the borrowed funds.

If the cost of borrowing funds to buy the security is less than the arbitrage profit possible, it makes sense for you to arbitrage. In the real world, one has to build in the transaction's costs into the arbitrage strategy.

6.10.5 What is Arbitrage: Underpriced Futures: Buy Futures, Sell Spot?

Whenever the Futures price deviates substantially from its fair value, arbitrage opportunities arise. It could be the case that you notice the Futures on a security you hold seem under-priced. How can you cash in on this opportunity to earn riskless profits? Say for instance, ABC Ltd. trades at Rs. 1000. One-month ABC Futures trade at Rs. 965 and seem under-priced. As an arbitrageur, you can make riskless profit by entering into the following set of transactions.

- On day one, sell the security in the cash/spot market at Rs. 1000.
- Make delivery of the security.
- Simultaneously, buy the futures on the security at Rs. 965.
- On the Futures expiration date, the spot and the Futures price converge. Now unwind the position.
- Say the security closes at Rs. 975. Buy back the security.
- The Futures position expires with a profit of Rs. 10.
- The result is a riskless profit of Rs. 25 on the spot position and Rs. 10 on the futures position.

If the returns you get by investing in riskless instruments is more than the return from the arbitrage trades, it makes sense for you to arbitrage. This is termed as reverse-cash-and-carry arbitrage. It is this arbitrage activity that ensures that the spot and futures prices stay in line with the cost-of-carry. As we can see, exploiting arbitrage involves trading on the spot market. As more and more players in the market develop the knowledge and skills to do cash-and-carry and reverse cash-and-carry, we will see increased volumes and lower spreads in both the cash as well as the derivatives market.

6.11 What is Hedging using Stock Index Futures?

As we have seen previously, hedging is a risk mitigation mechanism. A certain exposure in a security can hedged by an equal and opposite transaction in the futures for the same security. But what is the risk that is mitigated? Broadly there are two types of risks (as shown in the figure below) and hedging is used to minimize these risks.

Unsystematic Risk is also called as **Company Specific Risk or Diversifiable Risk**. Systematic Risk is the market-wide risk. Let us understand both these with some examples.

Suppose, an investor holds shares of steel company and has no other investments. Any change in the government policy would affect the price of steel and the company's share price. This is considered as Unsystematic Risk. This risk can be reduced through appropriate diversification. The investor can buy more stocks of different industries to diversify his portfolio so that the price change of any one stock does not affect his portfolio. However, diversification does not reduce risk in the overall portfolio completely. Diversification

reduces unsystematic risk.

There is another risk associated with the overall market returns, which is called as the **Systematic Risk or Market Risk or Non-diversifiable Risk**. It is that risk which cannot be reduced through diversification. Given the overall market movement (falling or rising), stock portfolio prices are affected. Generally, a falling overall market would see most stocks falling (and vice versa). This is the market specific risk. The market is denoted by the index. A fall in the index (say NIFTY 50) in a day sees most of the stock prices fall. Therefore, even if the investor has a diversified portfolio of stocks, the portfolio value is likely to fall of the market falls. This is due to the inherent Market Risk or Unsystematic Risk in the portfolio.

Hedging using Stock Index Futures or Single Stock Futures is one way to reduce the Unsystematic Risk.

Hedging can be done in two ways by an investor who has an exposure to the underlying stock(s): By selling Index Futures or by selling stock Futures and buying the stock in the spot market. Let us now look at how this work.

6.11.1 By Selling Index Futures

Consider the following scenario from December, 2013:

On 1st December 2013, an investor buys 125 shares of Infosys @ Rs. 3000 per share (approximate portfolio value of Rs. 3,75,000). However, the investor fears that the market will fall and thus needs to hedge. He uses NIFTY December Futures to hedge.

- Infosys trades as Rs. 3000
- NIFTY index is at 5950
- December NIFTY futures is trading at Rs. 6000
- The beta of Infosys is 1.2
- To hedge, the investor needs to sell [Rs. 3,75,000 * 1.2] = Rs. 4,50,000 worth of NIFTY futures (4,50,000/6000 = 75 NIFTY Futures)
- On Dec 19 2013, the market falls
- Infosys trades at Rs. 2750
- December NIFTY futures is trading at Rs. 5600

Thus, the investor's loss in Infosys is Rs. 31,250 (Rs. 250 × 125). The investors stock value now drops to Rs. 3,43,750 from Rs. 3,75,000. However, December NIFTY futures position gains by Rs. 30,000 (Rs. 400 × 75). Thus, the final portfolio (Stocks + Futures) value is Rs. 3,73,500 (Rs. 3,75,000 + Rs. 30,000 – Rs. 31,250).

Therefore, the investor faces only a nominal loss of Rs.1,250 in the portfolio. Without an exposure to NIFTY futures, he would have faced a loss of Rs. 31,250.

Thus, the example above shows that hedging:

- Prevents losses in spite of a fall in the value of the underlying shares
- Helps investor to continue to hold the shares while taking care of intermittent losses can be done by anyone with an exposure to an underlying asset class

Warning: Hedging involves costs and the outcome may not always be favourable if prices move in the reverse direction.

6.11.2 By Selling Stock Futures and Buying in Spot Market

An investor on 12th December 2013 buys 125 shares of Infosys at the price of Rs. 3000 per share. The portfolio value being Rs. 3,75,000 (Rs. 3000 x 125). The investor feels that the market will fall and thus needs to hedge by using Infosys futures (stock futures).

- The Infosys futures (near month) trades at Rs. 3100
- To hedge, the investor will have to sell 125 Infosys futures
- On futures expiry day: The Infosys spot price is Rs. 2900

Thus, the investor's loss is Rs. 12,500 (125 * (3000 – 2900)) and the stock value would reduce to Rs. 3,62,500 (Rs. 3,75,000 – 12,500). On the other hand, the investors profit in the Futures market would be Rs. 25,000 (125 * (3100 – 2900)).

Thus, the final portfolio

(Stocks + Futures) value is Rs. 3,87,500 (Rs. 3,75,000 + Rs. 25,000 – Rs.12,500).

6.11 What are the different Option Terminologies?

- **Call Option:** It gives the holder the right but not the obligation to buy an asset by a certain date for a certain price.
- **Put Option:** A It gives the holder the right but not the obligation to sell an asset by a certain date for a certain price.
- **Holder of an Option:** The buyer of an option is the one who by paying the option premium buys the right but not the obligation to exercise his option on the seller/ writer.
- **Writer of an Option:** The writer of a call/put option is the one who receives the option premium and is thereby obliged to sell/buy the asset if the buyer exercises on him.
- **Option Price/Premium:** It is the price which the option buyer pays to the option seller. It is also referred to as the option premium.
- **Expiration Date:** The date specified in the options contract is known as the expiration date, the exercise date, the Strike date or the maturity.
- **Strike Price:** The price specified in the options contract is known as the strike price or the exercise price.
- **American Options:** These can be exercised at any time up to the expiration date.
- **European Options:** These can be exercised only on the expiration date itself. European Options are easier to analyse than American Options and properties of an American Option are frequently deduced from those of its European counterpart.
- **Index Options:** Have the index as the underlying. They can be European or American. They are also cash settled. All Indian Index Options are European Options.

- **Stock Options:** They are options on individual stocks and give the holder the right to buy or sell shares at the specified price. They can be European or American. All stock options on NSE are European options since 1st January 2012.
- **In-the-money Option:** An in-the-money (ITM) option would lead to a positive cash flow to the holder if it were exercised immediately. A call option on the index is said to be in- the-money when the current index stands at a level higher than the strike price (i.e., spot price > Strike price). If the index is much higher than the strike price, the call is said to be deep ITM. In the case of a put, the Put is ITM if the index is below the strike price.
- **At-the-money Option:** An at-the-money (ATM) option would lead to zero cash flow if it were exercised immediately. An option on the index is at-the-money when the current index equals the strike price (i.e., spot price = strike price).
- **Out-of-the-money Option:** An out-of-the-money (OTM) option would lead to a negative cash flow if it were exercised immediately. A call option on the index is out-of-the-money when the current index stands at a level which is less than the strike price (i.e., spot price < strike price). If the index is much lower than the strike price, the call is said to be deep OTM. In the case of a put, the put is OTM if the index is above the strike price.
- **Intrinsic Value of an Option:** The option premium has two components – Intrinsic Value and Time Value. Intrinsic value of an option at a given time is the amount the holder of the option will get if he exercises the option at that time. The intrinsic value of a **Call is Max [0, (S_t — K)]** which means that the intrinsic value of a call is the greater of 0 or (S_t – K). Similarly, the intrinsic value of a **Put is Max [0, K — S_t]**, i.e., the greater of 0 or (K – S_t). K is the strike price and S_t is the spot price.
- **Time Value of an Option:** The time value of an option is the difference between its premium and its intrinsic value. Both calls and puts have time value. The longer the time to expiration, the greater is an option's time value, all else equal. At expiration, an option should have no time value.

6.12 What is the difference between Futures and Options?

Options are different from futures in several senses. At a practical level, the option buyer faces an interesting situation. He pays for the option in full at the time it is purchased. After this, he only has an upside. There is no possibility of the options position generating any further losses to him (other than the funds already paid for the option). This is different from Futures, which is free to enter into, but can generate very large losses. This characteristic makes options attractive to many occasional market participants, who cannot put in the time to closely monitor their futures positions.

Let us understand this with a scenario. A farmer wants to grow wheat and ensure that its price and sale quantity is locked in. So, he goes to a distributor and negotiates with him. Let us first consider the case of a futures contract (forward contract in this case).

The terms of the contract are as follows:

- Quantity – 100 kg
- Futures Price – Rs. 20/kg
- Period – 3 months

At the end of 3 months, the spot price for wheat is Rs. 25/kg. However, since the farmer has entered into the futures contract at Rs. 20/kg, and because the futures contract is binding, he has to sell 100kg of wheat at Rs. 20. If he did not enter into this contract, he could have sold at Rs. 25, thus making a total profit of Rs. 500 over the futures contract. But this is not possible, hence he makes a loss of Rs. 500 over the spot price.

This is where an option contract proves more profitable.

Let us see what happens if he had purchased an option contract (put option). Terms are as follows:

- Quantity – 100 kg
- Strike Price – Rs. 20/kg
- Period – 3 months
- Option Premium – Rs. 100

At the end of 3 months, the spot price for wheat is Rs. 25/kg

Now, since the farmer is getting a better price in the spot market, and because it is a put option of which he is the holder, he has no obligation to sell to the distributor at the Strike price. He instead sells it in the spot market, thus making a profit of Rs. 500 over the strike price. However, he has paid an option premium of Rs. 100 while entering into the contract. Thus, his net profit will be Rs. 400.

Thus, if he purchases the option contract, his downside is limited by the amount of option premium he has paid, but the upside is very high.

Buying put options is like buying insurance. To buy a put option on NIFTY is to buy insurance which reimburses the full extent to which NIFTY drops below the Strike price of the Put option. This is attractive to many people, and to mutual funds creating "guaranteed return products". Table 6.2 presents the comparison between the futures and options.

Table 6.2: Comparison between Futures and Options

Futures	Options
Exchange traded	Same as Futures
Exchange defines the product	Same as Futures
Price is zero, Strike price moves	Strike Price is fixed, price moves
Price is zero	Price is always positive
Linear payoff	Nonlinear payoff
Both long and short at risk	Only short at risk

More generally, options offer "nonlinear payoffs" whereas Futures only have "linear payoffs". By combining futures and options, a wide variety of innovative and useful payoff structures can be created.

6.13 Options Payoffs

The optionality characteristic of options results in a non-linear payoff for options. It means that the losses for the buyer of an option are limited; however, the profits are potentially unlimited. For a writer, the payoff is exactly the opposite. Profits are limited to the option premium; and losses are potentially unlimited. These non-linear payoffs are fascinating as they lend themselves to be used to generate various payoffs by using combinations of options and the underlying. We look here at the six basic payoffs.

6.14.1 Payoff Profile for Buyer of Asset: Long Asset

In this basic position, an investor buys the underlying asset, NIFTY for instance, for 17700, and sells it at a future date at an unknown price, S_t. Once it is purchased, the investor is said to be "long" the asset. Figure 6.4 shows the payoff for a long position on the NIFTY.

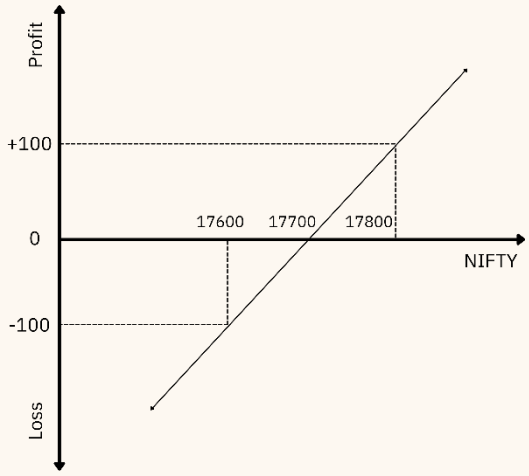


Figure 6.4: Payoff for Investor who went Long NIFTY at 17700

The figure 6.4 shows the profits/losses from a long position on the index. The investor bought the index at 17700. If the index goes up there is a profit, else there is a loss.

6.14.2 Payoff Profile for Seller of Asset: Short Asset

In this basic position, an investor shorts the underlying asset, NIFTY for instance, for 17700, and buys it back at a future date at an unknown price, S_t. Once it is sold, the investor is said to be "short" the asset. Figure 6.5 shows the payoff for a short position on the NIFTY.

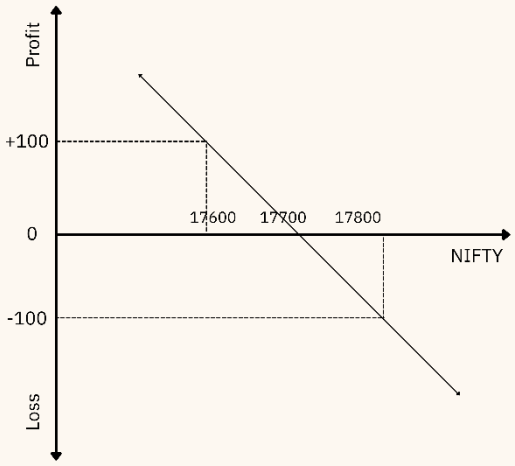


Figure 6.5: Payoff for Investor who went Short NIFTY at 17700

The figure 6.5 shows the profits/losses from a short position on the index. The investor sold the index at 17700. If the index falls, there are profits, else losses

6.14.3 Payoff Profile for Buyer of Call Options: Long Call

A call option gives the buyer the right to buy the underlying asset at the strike price specified in the option. The profit/loss that the buyer makes on the option depends on the spot price of the underlying. If upon expiration, the spot price exceeds the strike price, he makes a profit. Higher the spot price more is the profit. If the spot price of the underlying is less than the Strike price, the option expires un-exercised. The loss in this case is the premium paid for buying the option. Figure 6.6 gives the payoff for the buyer of a three-month call option (often referred to as long call) with a strike of 17750 bought at a premium of Rs. 86.60.

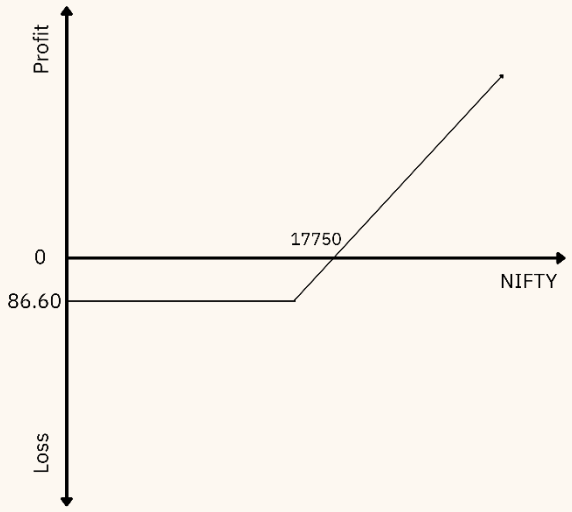


Figure 6.6: Payoff for Buyer of Call Option

The figure 6.6 above shows the profits/losses for the buyer of a three-month NIFTY 17750 call option. As can be seen, as the spot NIFTY rises, the call option is in-the-money. If upon expiration, NIFTY closes above the strike of 17750, the buyer would exercise his option and profit to the extent of the difference between the NIFTY-close and the strike price. The profits possible on this option are potentially unlimited. However, if NIFTY falls below the strike of 17750, he lets the option expire. The losses are limited to the extent of the premium paid for buying the option.

6.14.4 Payoff Profile for Writer of Call Options: Short Call

A call option gives the buyer the right to buy the underlying asset at the strike price specified in the option. For selling the option, the writer of the option charges a premium. The profit/loss that the buyer makes on the option depends on the spot price of the underlying. Whatever is the buyer's profit is the seller's loss. If upon expiration, the spot price exceeds the strike price, the buyer will exercise the Option on the writer. Hence as the spot price increases the writer of the option starts making losses. Higher the spot price, more are the losses. If upon expiration the spot price of the underlying is less than the strike price, the buyer lets his option expire un-exercised and the writer gets to keep the premium. Figure 6.7 gives the payoff for the writer of a three-month call option (often referred to as short call) with a Strike of 17750 sold at a premium of Rs. 86.60.

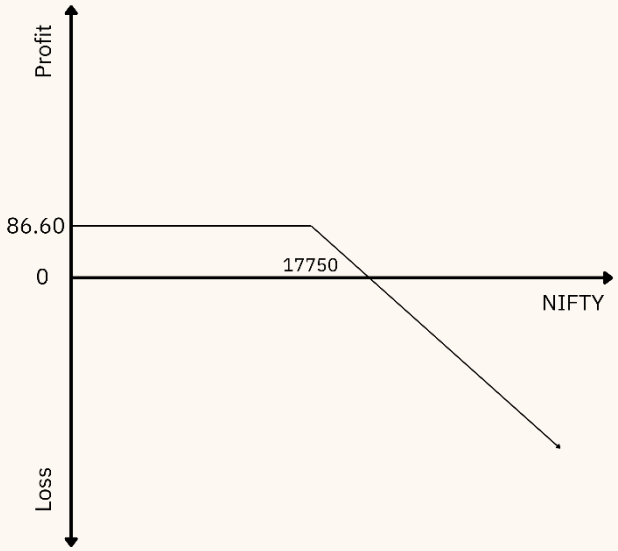


Figure 6.7: Payoff for Writer of Call Option

The figure 6.7 shows the profits/losses for the seller of a three-month NIFTY 17750 call option. As the spot NIFTY rises, the call option is in-the-money and the writer starts making losses. If upon expiration, NIFTY closes above the strike of 17750, the buyer would exercise his option on the writer who would suffer a loss to the extent of the difference between the NIFTY-close and the strike price. The loss that can be incurred by the writer of the option is potentially unlimited, whereas the maximum profit is limited to the extent of the up-front option premium of Rs. 86.60 charged by him.

6.14.5 Payoff Profile for Buyer of Put Options : Long Put

A put option gives the buyer the right to sell the underlying asset at the strike price specified in the option. The profit/loss that the buyer makes on the option depends on the spot price of the underlying. If upon expiration, the spot price is below the strike price, there is a profit. Lower the spot price more is the profit. If the spot price of the underlying is higher than the strike price, the option expires un-exercised. His loss in this case is the premium he paid for buying the option. Figure 6.8 gives the payoff for the buyer of a three-month put option (often referred to as long put) with a strike of 17750 bought at a premium of Rs. 61.70.

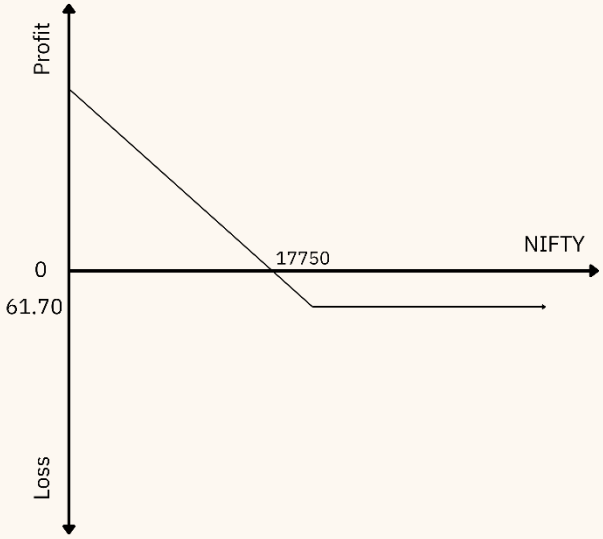


Figure 6.8: Payoff for Buyer of Put Option

The figure 6.8 shows the profits/losses for the buyer of a three-month NIFTY 17750 put option. As can be seen, as the spot NIFTY falls, the put option is in-the-money. If upon expiration, NIFTY closes below the strike of 17750, the buyer would exercise his option and profit to the extent of the difference between the strike price and NIFTY-close. The profits possible on this option can be as high as the Strike price. However. if NIFTY rises above the strike of 17750, the option expires worthless. The losses are limited to the extent of the premium paid for buying the option.

6.14.6 Payoff Profile for Writer of Put Option: Short Put

A put option gives the buyer the right to sell the underlying asset at the strike price specified in the option. For selling the option, the writer of the option charges a premium. The profit/loss that the buyer makes on the option depends on the spot price of the underlying. Whatever is the buyer's profit is the seller's loss. If upon expiration, the spot price happens to be below the strike price, the buyer will exercise the option on the writer. If upon expiration the spot price of the underlying is more than the strike price, the buyer lets his option go un-exercised and the writer gets to keep the premium. Figure 6.9 gives the payoff for the writer of a three-month put option (often referred to as short put) with a strike of 17750 sold at a premium of Rs. 61.70.

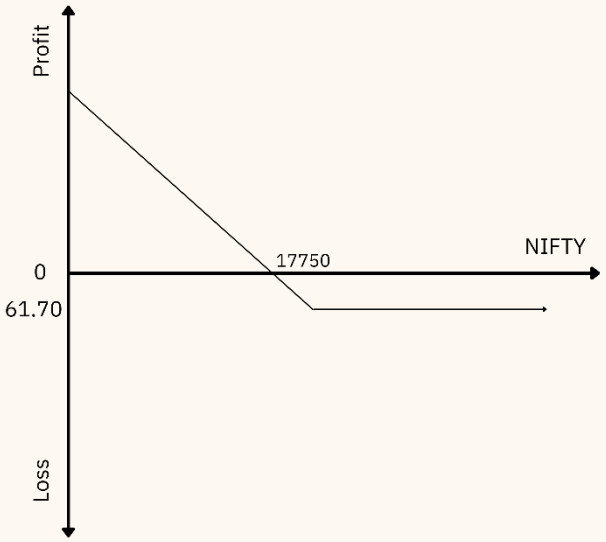


Figure 6.9: Payoff for Writer of Put Option

The figure 6.9 shows the profits/losses for the seller of a three-month NIFTY 17750 put option. As the spot NIFTY falls, the put option is in-the-money and the writer starts making losses. If upon expiration, NIFTY closes below the strike of 17750, the buyer would exercise his option on the writer who would suffer a loss to the extent of the difference between the strike price and NIFTY close. The loss that can be incurred by the writer of the option is a maximum extent of the strike price (Since the worst that can happen is that the asset price can fall to zero) whereas the maximum profit is limited to the extent of the up-front option premium of Rs. 61.70 charged by him.

6.14 Application of Options

We look here at some applications of options contracts. We refer to single stock options here. However, since the index is nothing but a security whose price or level is a weighted average of securities constituting the index, all strategies that can be implemented using stock futures can also be implemented using index

options.

6.15.1 Hedging: Have underlying buy Puts

Owners of stocks or equity portfolios often experience discomfort about the overall stock market movement. As an owner of stocks or an equity portfolio, sometimes one may have a view that stock prices will fall in the near future. At other times one may witness massive volatility. The union budget is a common and reliable source of such volatility: market volatility is always enhanced for one week before and two weeks after a budget. Many investors simply do not want the fluctuations of these three weeks. One way to protect your portfolio from potential downside due to a market drop is to buy insurance using put options.

Index and stock options are a cheap and can be easily implemented to seek insurance from the market ups and downs. The idea is simple. To protect the value of your portfolio from falling below a particular level, buy the right number of put options with the right strike price. If you are only concerned about the value of a particular stock that you hold, buy put options on that stock. If you are concerned about the overall portfolio, buy put options on the index. When the stock price falls your stock will lose value and the put options bought by you will gain, effectively ensuring that the total value of your stock plus put does not fall below a particular level. This level depends on the strike price of the stock options chosen by you. Similarly, when the index falls, your portfolio will lose value and the put options bought by you will gain, effectively ensuring that the value of your portfolio does not fall below a particular level. This level depends on the strike price of the index options chosen by you.

Portfolio insurance using put options is of particular interest to mutual funds who already own well-diversified portfolios. By buying puts, the fund can limit its downside in case of a market fall.

6.15.2 Speculation: Bullish Security, Buy Calls or Sell Puts

There are times when investors believe that security prices are going to rise. How does one implement a trading strategy to benefit from an upward movement in the underlying security? Using options there are two ways one can do this

- Buy Call Options; or
- Sell Put Options

We have already seen the payoff of a call option. The downside to the buyer of the call option is limited to the option premium he pays for buying the option. His upside however is potentially unlimited. Suppose you have a hunch that the price of a particular security is going to rise in a months' time. Your hunch proves correct and the price does indeed rise, it is this upside that you cash in on. However, if your hunch proves to be wrong and the security price plunges down, what you lose is only the option premium.

Having decided to buy a call, which one should you buy? The illustration that follows gives the premia for one month calls and puts with different strikes. Given that there are a number of one-month calls trading, each with a different strike price, the obvious question is: which strike should you choose? Let us take a look at call options with different strike prices. Assume that the current price level is Rs. 1250, risk-free rate is 12% per year and volatility of the underlying security is 30%. The following options are available:

- A one-month Call with a Strike of Rs. 1200
- A one-month Call with a Strike of Rs. 1225

- A one-month Call with a Strike of Rs. 1250
- A one-month Call with a Strike of Rs. 1275
- A one-month Call with a Strike of Rs. 1300

Which of these options you choose largely depends on how strongly you feel about the likelihood of the upward movement in the price, and how much you are willing to lose should this upward movement not come about. There are five one-month calls and five one-month puts trading in the market. The call with a strike of Rs. 1200 is deep in-the-money and hence trades at a higher Premium. The call with a strike of Rs. 1275 is out-of-the-money and trades at a low premium. The call with a strike of Rs. 1300 is deep-out-of-money. Its execution depends on the unlikely event that the underlying will rise by more than 50 points on the expiration date. Hence buying this call is basically like buying a lottery. There is a small probability that it may be in-the-money by expiration, in which case the buyer will make profits. In the more likely event of the call expiring out-of-the-money, the buyer simply loses the small premium amount of Rs. 27.50.

As a person who wants to speculate on the hunch that prices may rise, you can also do so by selling or writing puts. As the writer of puts, you face a limited upside and an unlimited downside. If prices do rise, the buyer of the put will let the option expire and you will earn the premium. If, however, your hunch about an upward movement proves to be wrong and prices actually fall, then your losses directly increase with the falling price level. If for instance the price of the underlying falls to Rs. 1230 and you've sold a Put with an exercise of Rs. 1300, the buyer of the put will exercise the option and you'll end up losing Rs. 70. Taking into account the Premium earned by you when you sold the put, the net loss on the trade is Rs. 5.20.

Having decided to write a put, which one should you write? Given that there are a number of one-month puts trading, each with a different strike price, the obvious question is: which strike should you choose? This largely depends on how strongly you feel about the likelihood of the upward movement in the prices of the underlying. If you write an at-the-money put, the option premium earned by you will be higher than if you write an out-of-the-money Put. However, the chances of an at-the-money put being exercised on you are higher as well.

Illustration: One-month Calls and Puts trading at different Strikes

The spot price is Rs. 1250. There are five one-month calls and five one-month puts trading in the market. The call with a strike of Rs. 1200 is deep in-the-money and hence trades at a higher premium. The call with a strike of Rs. 1275 is out-of-the-money and trades at a low premium. The call with a strike of Rs. 1300 is deep-out-of-money. Its execution depends on the unlikely event that the price of underlying will rise by more than 50 points on the expiration date. Hence buying this call is basically like buying a lottery. There is a small probability that it may be in-the-money by expiration in which case the buyer will profit. In the more likely event of the call expiring out-of-the-money, the buyer simply loses the small premium amount of Rs. 27.50. Figure 6.10 shows the payoffs from buying calls at different strikes. Similarly, the put with a strike of Rs. 1300 is deep in-the-money and trades at a higher premium than the at-the-money put at a Strike of Rs. 1250. The put with a strike of Rs. 1200 is deep out-of-the-money and will only be exercised in the unlikely event that underlying falls by 50 points on the expiration date. Figure 6.11 shows the payoffs from writing puts at different strikes.

Underlying	Strike price of option	Call Premium (Rs.)	Put Premium (Rs.)
1250	1200	80.10	18.15
1250	1225	63.65	26.50
1250	1250	49.45	37.00
1250	1275	37.50	49.80
1250	1300	27.50	64.80

In the example in figure 6.10, at a price level of Rs. 1250, one option is in-the-money and one is out-of-the-money. As expected, the in-the-money option fetches the highest premium of Rs. 64.80 whereas the out-of-the-money option has the lowest premium of Rs. 18.15.

6.15.3 Speculation: Bearish Security, Sell Calls or Buy Puts

Do you sometimes think that the market is going to drop? Could you make a profit by adopting a position on the market? Due to poor corporate results, or the instability of the government, many people feel that the stocks prices would go down. How does one implement a trading strategy to benefit from a downward movement in the market? Today, using options, you have two choices:

- Sell Call Options; or
- Buy Put Options

We have already seen the payoff of a call option. The upside to the writer of the call option is limited to the option premium he receives upright for writing the option. His downside however is potentially unlimited. Suppose you have a hunch that the price of a particular security is going to fall in a months' time. Your hunch proves correct and it does indeed fall, it is this downside that you cash in on. When the price falls, the buyer of the call lets the call expire and you get to keep the premium. However, if your hunch proves to be wrong and the market soars up instead, what you lose is directly proportional to the rise in the price of the security.

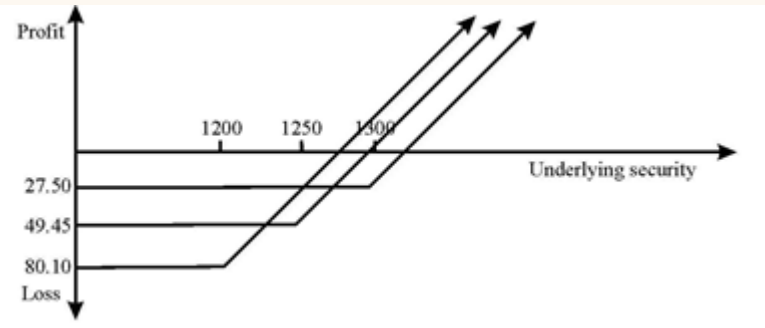


Figure 6.10: Payoff for Buyer of Call Options at various strikes

The figure 6.10 shows the profits/losses for a buyer of calls at various strikes. The in-the-money option with a strike of Rs. 1200 has the highest Premium of Rs. 80.10 whereas the out-of-the-money option with a Strike of Rs. 1300 has the lowest premium of Rs. 27.50.

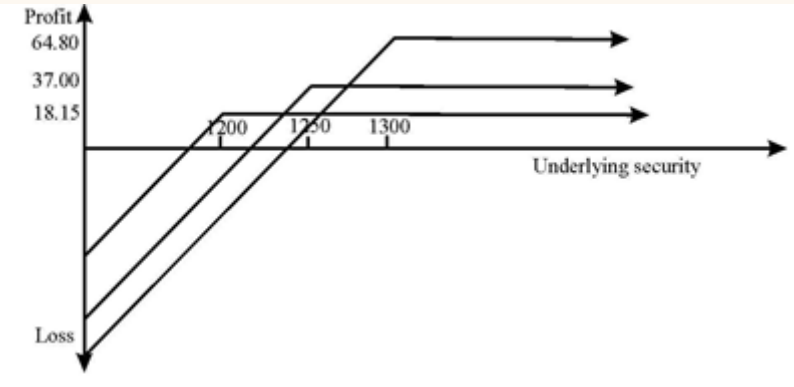


Figure 6.11: Payoff for Writer of Put Options at various Strikes

The figure 6.11 above shows the profits/losses for a writer of puts at various strikes. The in-the-money option with a strike of Rs. 1300 fetches the highest premium of Rs. 64.80 whereas the out-of-the-money option with a strike of Rs. 1200 has the lowest premium of Rs. 18.15.

Having decided to write a call, which one should you write? The illustration that follows gives the premiums for one month calls and puts with different strikes. Given that there are a number of one- month calls trading, each with a different strike price, the obvious question is: which strike should you choose? Let us take a look at call options with different strike prices. Assume that the current stock price is 1250, risk-free rate is 12% per year and stock volatility is 30%. You could write the following options:

- A one-month Call with a Strike of Rs. 1200
- A one-month Call with a Strike of Rs. 1225
- A one-month Call with a Strike of Rs. 1250
- A one-month Call with a Strike of Rs. 1275
- A one-month Call with a Strike of Rs. 1300

Which of these options you write largely depends on how strongly you feel about the likelihood of the downward movement of prices and how much you are willing to lose should this downward movement not come about. There are five one-month calls and five one-month puts trading in the market. The call with a strike of Rs. 1200 is deep in-the-money and hence trades at a higher premium. The call with a strike of Rs. 1275 is out-of-the-money and trades at a low premium. The call with a strike of Rs. 1300 is deep-out-of-money. Its execution depends on the unlikely event that the stock will rise by more than 50 points on the expiration date. Hence writing this call is a fairly safe bet. There is a small probability that it may be In-the-money by expiration in which case the buyer exercises and the writer suffers losses to the extent that the price is above Rs. 1300. In the more likely event of the call expiring out-of-the-money, the writer earns the premium amount of Rs. 27.50.

As a person who wants to speculate on the hunch that the market may fall, you can also buy puts. As the

buyer of puts you face an unlimited upside but a limited downside. If the price does fall, you profit to the extent the price falls below the strike of the put purchased by you. If, however your hunch about a downward movement in the market proves to be wrong and the price actually rises, all you lose is the option premium. If for instance the security price rises to Rs. 1300 and you've bought a put with an exercise of Rs. 1250, you simply let the put expire. If, however, the price does fall to say Rs. 1225 on expiration date, you make a neat profit of Rs. 25.

6.15 Having decided to buy a put, which one should you buy? Given that there are a number of one-month puts trading, each with a different strike price, the obvious question is: which strike should you choose? This largely depends on how strongly you feel about the **likelihood** of the downward movement in the market. If you buy an at-the-money put, the option premium paid by you will be higher than if you buy an out-of-the-money put. However, the chances of an at-the-money put expiring in-the-money are higher as well.

Illustration: One-month Calls and Puts trading at different Strikes

The spot price is Rs. 1250. There are five one-month calls and five one-month puts trading in the market. The call with a strike of Rs. 1200 is deep in-the-money and hence trades at a higher premium. The call with a strike of Rs. 1275 is out-of-the-money and trades at a low premium. The call with a strike of Rs. 1300 is deep-out-of-money. Its execution depends on the unlikely event that the price will rise by more than 50 points on the expiration date. Hence writing this call is a fairly safe bet. There is a small probability that it may be in-the-money by expiration in which case the buyer exercises and the writer suffers losses to the extent that the price is above Rs. 1300. In the more likely event of the call expiring out-of-the-money, the writer earns the premium amount of Rs. 27.50. Figure 6.12 shows the payoffs from writing calls at different strikes. Similarly, the put with a strike of Rs. 1300 is deep-in-the-money and trades at a higher premium than the at-the-money put at a strike of Rs. 1250. The put with a strike of Rs. 1200 is deep-out-of-the-money and will only be exercised in the unlikely event that the price falls by 50 points on the expiration date. The choice of which put to buy depends upon how much the speculator expects the market to fall. Figure 6.13 shows the payoffs from buying puts at different strikes.

Price	Strike Price of Option	Call Premium (Rs.)	Put Premium (Rs.)
1250	1200	80.10	18.15
1250	1225	63.65	26.50
1250	1250	49.45	37.00
1250	1275	37.50	49.80
1250	1300	27.50	64.80

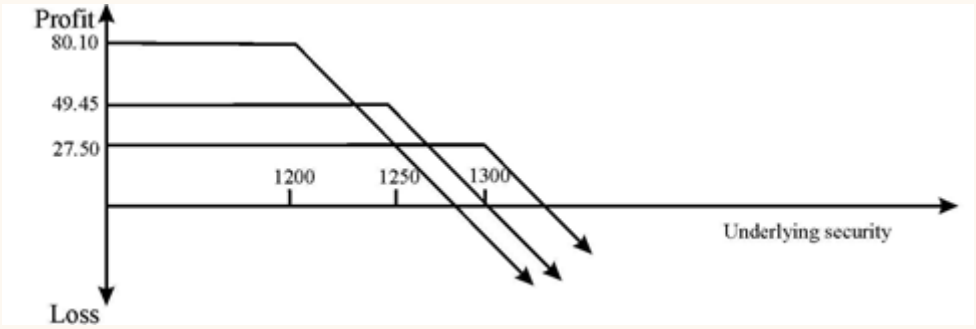


Figure 6.12: Payoff for Seller of Call Option at various strikes

The figure 6.12 shows the profits/losses for a seller of calls at various strike prices. The in-the-money option has the highest premium of Rs.80.10 whereas the out-of-the-money option has the lowest premium of Rs. 27.50.

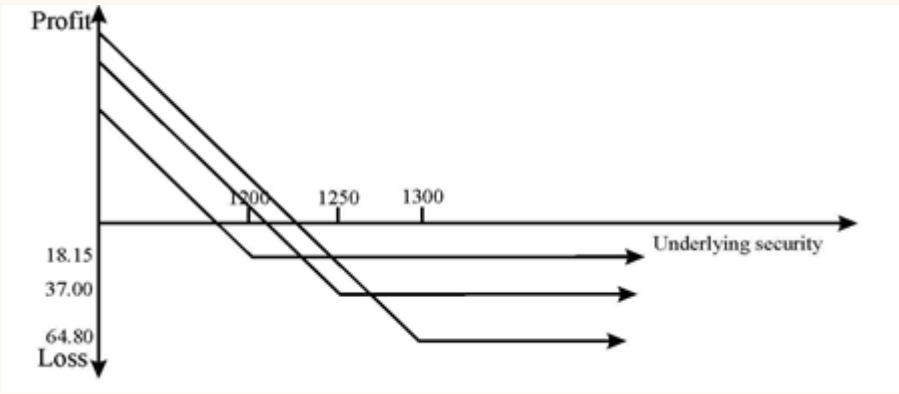


Figure 6.13: Payoff for Buyer of Pall Option at various strikes

The figure 6.13 shows the profits/losses for a buyer of puts at various strike prices. The in-the-money option has the highest premium of Rs. 64.80 whereas the out-of-the-money option has the lowest premium of Rs. 18.50.

6.15.4 Bull Spreads - Buy a Call and Sell another

There are times when you think the market is going to rise over the next two months, however in the event that the market does not rise, you would like to limit your downside. One way you could do this is by entering into a spread. A spread trading strategy involves taking a position in two or more options of the same type, that is, two or more calls or two or more puts. A spread that is designed to profit if the price goes up is called a bull spread.

How does one go about doing this? This is basically done utilizing two call options having the same expiration date, but different exercise prices. The buyer of a bull spread buys a call with an exercise price below the current index level and sells a call option with an exercise price above the current index level. The spread is a bull spread because the trader hopes to profit from a rise in the index. The trade is a spread because it involves buying one option and selling a related option. Compared to buying the underlying asset itself, the bull spread with call options limits the trader's risk, but the bull spread also limits the profit potential.

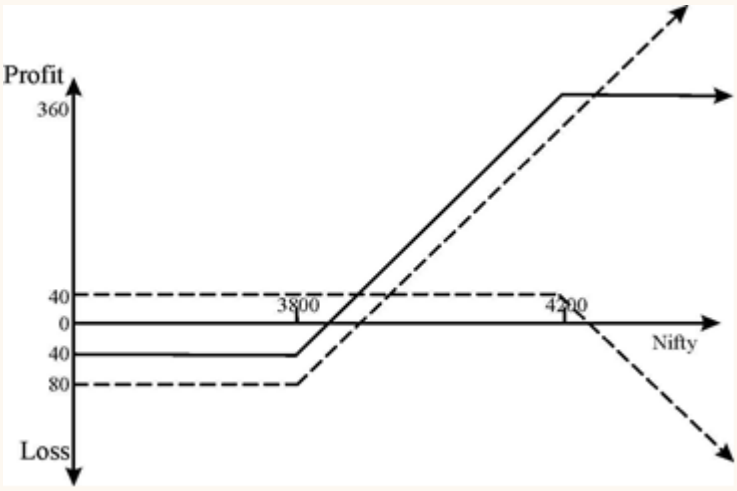


Figure 6.14: Payoff for a bull spread created using Call Options

The figure 6.14 shows the profits/losses for a bull spread. *(The index values in this illustration are retrospective)* As can be seen, the payoff obtained is the sum of the payoffs of the two calls, one sold at Rs. 40 and the other bought at Rs. 80. The cost of setting up the spread is Rs. 40 which is the difference between the call premium paid and the call premium received. The downside on the position is limited to this amount. As the index moves above 3800, the position starts making profits (cutting losses) until the index reaches 4200. Beyond 4200, the profits made on the long call position get offset by the losses made on the short call position and hence the maximum profit on this spread is made if the index on the expiration day closes at 4200. Hence the payoff on this spread lies between – 40 to 360. Somebody who thinks the index is going to rise, but not above 4200 would buy this spread. Hence, he does not want to buy a call at 3800 and pay a Premium of 80 for an upside he believes will not happen.

In short, it limits both the upside potential as well as the downside risk. The cost of the bull spread is the cost of the option that is purchased, less the cost of the option that is sold. The illustration that follows gives the profit/loss incurred on a spread position as the index changes. Figure 6.14 shows the payoff from the bull spread.

Broadly, we can have three types of bull spreads:

- Both Calls initially out-of-the-money.
- One Call initially in-the-money and one Call initially out-of-the-money, and
- Both Calls initially in-the-money.

The decision about which of the three spreads to undertake depends upon how much risk the investor is willing to take. The most aggressive bull spreads are of type 1. They cost very little to set up, but have a very small probability of giving a high payoff.

Illustration: Expiration Day Cash Flows for a Bull Spread using two-month Calls

The table shows	Buy Call 4200 Call	Sell Jan	Cash Flow	Profit & Loss (Rs.)
3700	0	0	0	-40
3750	0	0	0	-40
3800	0	0	0	-40
3850	+50	0	50	+10
3900	+100	0	100	+60
3950	+150	0	150	+110
4000	+200	0	200	+160
4050	+250	0	250	+210
4100	+300	0	300	+260
4150	+350	0	350	+310
4200	+400	0	400	+360
4250	+450	-50	400	+360
4300	+500	-100	400	+360

6.15.5 Bear Spreads - Sell a Call and Buy another

There are times when you think the market is going to fall over the next two months. However, in the event that the market does not fall, you would like to limit your downside. One way you could do this is by entering into a spread. A spread trading strategy involves taking a position in two or more options of the same type, that is, two or more calls or two or more puts. A spread that is designed to profit if the price goes down is called a bear spread.

This is basically done utilizing two call options having the same expiration date, but different exercise prices. In a bear spread, the strike price of the option purchased is greater than the strike price of the option sold. The buyer of a bear spread buys a call with an exercise price above the current index level and sells a call option with an exercise price below the current index level. The spread is a bear spread because the trader hopes to profit from a fall in the index. The trade is a spread because it involves buying one option and selling a related option. Compared to buying the index itself, the bear spread with call options limits the trader's risk, but it also limits the profit potential. In short, it limits both the upside potential as well as the downside risk.

A bear spread created using calls involves initial cash inflow since the price of the call sold is greater than the

price of the call purchased. The illustration that follows gives the profit/loss incurred on a spread position as the index changes. Figure 6.15 shows the payoff from the bear spread.

Broadly we can have three types of bear spreads:

- Both Calls initially out-of-the-money
- One Call initially in-the-money and one Call initially out-of-the-money, and
- Both Calls initially in-the-money

The decision about which of the three spreads to undertake depends upon how much risk the investor is willing to take. The most aggressive bear spreads are of type 1. They cost very little to set up, but have a very small probability of giving a high payoff. As we move from type 1 to type 2 and from type 2 to type 3, the spreads become more conservative and cost higher to set up. Bear spreads can also be created by buying a put with a high strike price and selling a put with a low strike price.

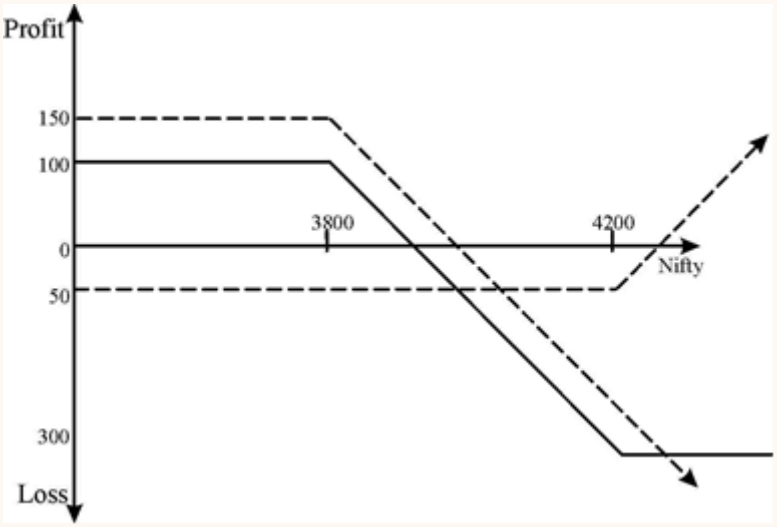


Figure 6.15: Payoff for a Bear Spread created using Call Options

The figure 6.15 shows the profits/losses for a bear spread. As can be seen, the payoff obtained is the sum of the payoffs of the two calls, one sold at Rs. 150 and the other bought at Rs. 50. The maximum gain from setting up the spread is Rs. 100 which is the difference between the call premium received and the call premium paid. The upside on the position is limited to this amount. As the index moves above 3800, the position starts making losses (cutting profits) until the spot reaches 4200. *(The index values in this illustration are retrospective)* Beyond 4200, the profits made on the long call position get offset by the losses made on the short call position. The maximum loss on this spread is made if the index on the expiration day closes at 2350. At this point the loss made on the two call position together is Rs. 400 i.e. (4200-3800). However, the initial inflow on the spread being Rs.100, the net loss on the spread turns out to be 300. The downside on this spread position is limited to this amount. Hence the payoff on this spread lies between +100 to -300.

Illustration: Expiration Day Cash Flows for a Bear Spread using two-month Calls

The table shows possible expiration day profit for a bear spread created by selling one market lot of calls at

a strike of 3800 and buying a market lot of calls at a strike of 4200. The maximum profit obtained from setting up the spread is the difference between the premium received for the call sold (Rs. 150) and the premium paid for the call bought (Rs.50) which is Rs. 100.

In this case the maximum loss obtained is limited to Rs.300. Beyond an index level of 4200, any profits made on the long call position will be cancelled by losses made on the short call position, effectively limiting the profit on the combination.

NIFTY	Buy Jan Call 4200	Sell Jan 3800 Call	Cash Flow	Profit & Loss (Rs.)
3700	0	0	0	+100
3750	0	0	0	+100
3800	0	0	0	+100
3850	0	-50	-50	+50
3900	0	-100	-100	0
3950	0	-150	-150	-50
4000	0	-200	-200	-100
4050	0	-250	-250	-150
4100	0	-300	-300	-200
4150	0	-350	-350	-250
4200	0	-400	-400	-300
4250	+50	-450	-400	-300
4300	+100	-500	-400	-300

Points to Remember:

Forwards and futures are forward commitment type of derivatives. Forwards are over-the- counter contracts wherein parties to the contract agree to exchange the underlying asset at a future date at a fixed price. These contracts are bilaterally negotiated and not listed on an exchange. The forward price is not available in the public domain. These contracts are illiquid and exposed to counter-party risk.

Futures contracts are exchange traded derivatives that are by nature the same as forward contracts. The main difference is that the contracts are introduced on an exchange with standardized terms such as price, quantity, quality of underlying asset and so on. The counterparty risk in futures is lower and they are more liquid than forward contracts.

Pricing of index and stock futures is done by the cost of carry method, viz

$$F = Se^{rT}$$

where:
S Spot Price
r Cost of financing (using continuously compounded interest rate)
T Time till expiration in years
e 2.71828

Futures are used as a risk management tool by corporate, banks and investors. A risk in the spot markets can be hedged by entering into an equal and opposite transaction for the same exposure in the Futures market. There are various strategies used for Speculation and arbitrage by simultaneous transactions in the spot and futures market.

In case of speculation, the use of Futures provides additional exposure due to the leverage factor, then directly purchasing in the spot markets.

In case of arbitrage, the investor can take advantage of discrepancies in the spot and Futures price of the same stock by taking purchasing in one market and selling in the other, thus making almost risk-free profit in such scenarios.

Hedging can be achieved by either using index futures or the stock futures itself, to remove unsystematic risk in a transaction.

Key Words

Forward Contracts, Forward Markets, Futures, Payoffs, Pricing Futures, Stock Futures, Hedging

Questions for Practice

1) They are bilateral contracts and hence exposed to counter-party risk?
   a) Futures Contracts
   b) Forward Contracts
   c) Option Contracts
   d) None of the above

2) A ..... is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price?
   a) Futures Contracts
   b) Swaps
   c) Futures Contracts
   d) Option Contracts

3) ..... does not require Margin payment?
   a) Swaps
   b) Forwards
   c) Futures
   d) None of the above

4) Counterparty risk is quite high in case of .....?
   a) Option Contracts
   b) Futures Contracts
   c) Forward contracts
   d) None of the above

5) ..... is defined as the futures price minus the spot price?
   a) Long Position
   b) Short Position
   c) Contract Cycle
   d) Basis

6) Forward contracts are often confused with .....?
   a) Swaps
   b) Option contracts
   c) Futures contracts
   d) None of the above

7) There are no costs of storage involved in holding .....?
   a) Equity
   b) Mutual Funds
   c) Depositories
   d) All of the above

8) ..... measures the sensitivity of stocks responsiveness to market factors?
   a) Futures
   b) Beta
   c) Pricing

d) None of the above

9) It gives the holder the right but not the obligation to sell an asset by a certain date for a certain price?
   a) Put Option
   b) Call Option
   c) Holder of an Option
   d) Stock Option

10) In ..... the price is always positive?
   a) Forwards
   b) Swaps
   c) Futures
   d) Options

References and Suggested Readings

References and suggested readings

The readings suggested here are supplementary in nature and would prove to be helpful for those interested in acquiring advanced knowledge about Capital Markets.

1. www.nseindia.com
2. www.sebi.gov.in
3. www.rbi.org.in
4. www.finmin.nic.in
5. Rules, Regulations and Bye-laws of NSEIL & NSCCL
6. Indian Securities Market: A Review – NSEIL Publication
7. NSE Newsletter – NSEIL Publication

Note: Candidates are advised to refer to NSE's website: www.nseindia.com while preparing for NCFM test(s) for announcements pertaining to revisions/updation in NCFM modules or launch of new modules, if any.

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