

Chapter 5 Introducing and Understanding Transaction cycle

Learning Objectives:

After reading this chapter, you should be able:

1. To identify the parties involved in the process of clearing and settlement.
2. To understand the functions of the relevant parties.
3. To understand the procedure of settlement of trades.
4. To know the types of risks that an investor is exposed to.

Your guide engine to learning:

5.1 Introduction

5.2 Transaction Cycle

5.3 Settlement Agencies

- 5.3.1 National Securities Clearing Corporation Limited (NSCCL)
- 5.3.2 Clearing Members
- 5.3.3 Custodians
- 5.3.4 Clearing Banks
- 5.3.5 Depositories
- 5.3.6 Professional Clearing Members (PCM's)

5.4 Settlement Process

5.5 Risks in Settlement

- 5.5.1 Counterparty Risk
 - 5.5.1.1 Replacement Cost Risk
 - 5.5.1.2 Principal Risk
 - 5.5.1.3 Liquidity Risk
 - 5.5.1.4 Third Party Risk
- 5.5.2 System Risk
 - 5.5.2.1 Operational Risk
 - 5.5.2.2 Legal Risk
 - 5.5.2.3 Systemic Risk

5.1 Introduction

Earlier we used to follow **account period settlement** for settling all the trades in the stock market. Account period in NSE was from Wednesday to the following Tuesday. This means trades done on Wednesday, Thursday, Friday, Monday and Tuesday will be paid-in on Tuesday and paid-out on the following Wednesday. This was a time consuming process. An investor who had bought the shares will have to wait till the following Wednesday to get the delivery of shares, so he will be unable to reap the benefit of rising prices during the period. Also, the shares being in physical form created a lot of problem for the buyer as they had to be sent to the company or their R&TA (Registrar & Transfer Agent) for getting the ownership changed of the securities. While on BSE, the cycle commenced on Monday and ended on Friday. At the end of this period, the net obligations of all the brokers were calculated and the brokers

settle their respective obligations as per the rules, bye-laws and regulations of the clearing corporation.

Account period is a system that encourages liquidity in the market because people can buy and sell without having to pay immediately - almost like using a credit card. But the flip side of the system is that the longer it takes between a trade (a buy or sell) and actual settlement, the riskier the system is.

Nowadays, the scenario has totally changed. The clearing and settlement system has become very transparent and therefore, people have also started having faith in the market and its operations. The use of super computers to carry out the trades and to maintain their records has actually made the market operations crystal clear. Apart from the state of art information technology, the **latest innovations** include:

- Emergence of clearing corporation to assume counterparty risks; we will be discussing this later in this chapter.
- Replacement of account period settlement by rolling settlement system leading to shorter settlement cycles,
- Dematerialization of securities has been adopted in place of physical securities; we will be discussing this later in this unit.
- Electronic transfer of securities through book entry system; we will be discussing this later in this unit.
- Fine tune risk management system, etc.; we will be discussing this later in this unit.

Though many of these have not been implemented fully as they are yet to reach the masses and penetrate the whole market.

One of the greatest achievements of the current system is settlement of trades within three working days, i.e. **T+2 rolling settlement** which has replaced account period settlement, which used to take at least a week to define the obligations. Rolling settlement has now been introduced for all securities.

Rolling settlement involves shrinking the netting period to one day. This is part of the historical progression that we have followed in India's equity market. The length of the netting period has gone from an undisciplined fortnight to a disciplined week, and with rolling period it now goes to a day.

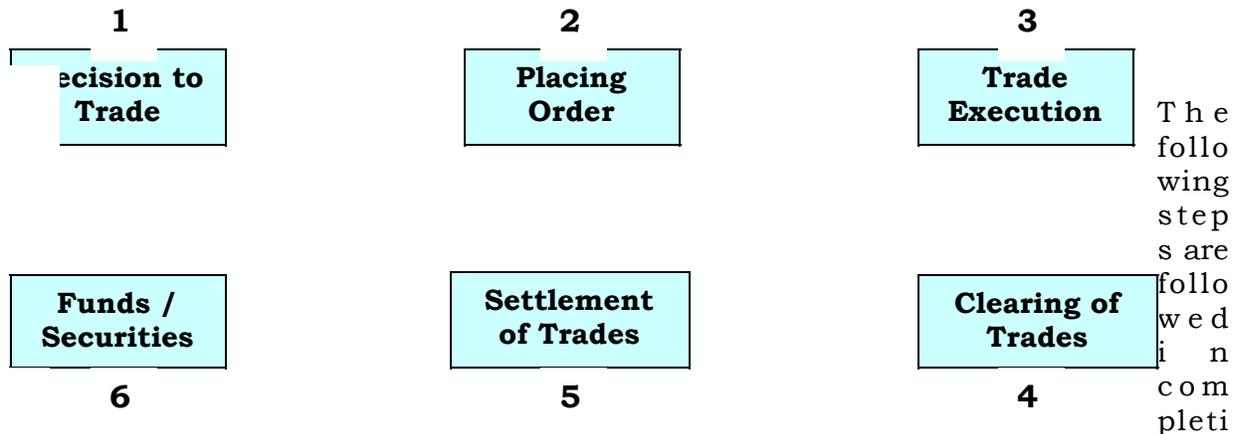
Account Period Settlement

Wed Thur Fri Sat Sun Mon Tues Wed

T+2 Rolling Settlement

5.2 Transaction Cycle

A transaction cycle depicts the steps followed by a client in order to execute a trade wherein a buy order matches with a sell order.



ng a transaction cycle:

- Step 1:** The above cycle is initiated by a client who wants to either buy or sell securities. In that case, he has to make a decision regarding the same. A decision is taken by the client after considering the liquidity conditions and requirements or reshuffles his holdings in response to changes in the market conditions or perceptions.
- Step 2:** He then selects a broker and instructs him to place buy/sell order on an exchange.
- Step 3:** The order is converted to a trade as soon as it finds a matching sell/buy order.
- Step 4:** The trades are netted to determine the obligations of the trading members to deliver securities/funds as per settlement schedule.
- Step 5:** Buyer/seller delivers funds/securities and receives securities/funds and acquires ownership of the securities.

We will be elaborating this transaction cycle in detail with the chapters in this unit. But before that we need to understand the role of the agencies that helps in the smooth functioning of the transaction cycle.

5.3 Settlement Agencies

The NSCCL, along with other agencies like clearing members, custodians, clearing banks and depositories settles trades executed on the exchange. The roles of each of the entities are explained below.

5.3.1 National Securities Clearing Corporation Limited (NSCCL)

The NSCCL, a wholly owned subsidiary of NSE, was incorporated in August 1995. NSCCL commenced clearing operations in April 1996. It was set up for the following purposes:

- To bring and sustain confidence in clearing and settlement of securities;

Introducing and Understanding Transaction Cycle

- To promote and maintain, short and consistent settlement cycles;
- To provide counter-party risk guarantee, and
- To operate a tight risk containment system.

NSCCL carries out the clearing and settlement of the trades executed in the Equities and Derivatives segments and operates Subsidiary General Ledger (SGL) for settlement of trades in government securities. It **performs the following tasks:**

- Clears all trades;
- Determines obligations of members;
- Arranges for pay-in of funds and securities;
- Arranges for pay-out of funds and securities;
- Assumes the counter-party risk of each member and guarantees financial settlement.
- It also undertakes settlement of transactions on other stock exchanges like, the Over the Counter Exchange of India.

Through NSCCL, we have been able to up-grade the clearing and settlement procedures in the Indian Stock Market and have brought Indian financial markets in line with international markets.

5.3.2 Clearing Members

Clearing members are **responsible for settling the trades** done on all the counters. Settling the trades involves taking the responsibility of making available the resources required on time, i.e. making available the funds and securities on the settlement day. Settlement day would mean T+2 day. Funds are made available through the clearing banks where the clearing member has his account and securities are made available through the depository participant. In case of trades done on the capital market segment, all trading members have to be their own clearing members too, i.e. they only have to settle the trades done by them (every TM has to be his own CM). In case of trades done in 'Future and Option' market, clearing member can be a separate entity than trading member as the volume of trades done in this segment is huge. A clearing member has to get himself registered with NSCCL.

5.3.3 Custodians

As the name suggests, the custodians perform the task of **keeping the securities in a safe manner/custody**. They hold the documentary proof of securities, keeping the title of securities intact in the name of the holder. In NSCCL, custodian is only a clearing member and not a trading member. A custodian is required to settle the trades only after confirming to the NSCCL that it will be settling the trade or not. If it takes the obligation, it will have to settle the trades and if not, then the obligation is assigned back to the trading member for whom the custodian works.

Enrich your learning

There are **eleven custodians** empanelled with NSCCL. They are ABN Amro Bank N.V., Citibank N.A., Deutsche Bank A.G., HDFC Bank Ltd., Hong Kong & Shanghai Banking Corporation Ltd., ICICI bank Ltd., IndusInd Bank Ltd., Infrastructure Leasing & Financial Services Ltd., Standard Chartered Bank, State Bank of India, Stock Holding Corporation of India Ltd.

5.3.4 Clearing Banks

Clearing banks act as a link between the clearing members and the NSCCL for the settlement of funds, i.e. pay-in and pay-out of funds. Every clearing member gets an account opened with a clearing bank for this purpose only. A clearing bank works on the instructions of the clearing member. A clearing member after defining the obligations in terms of funds informs the clearing bank about the obligations to be fulfilled. The clearing bank makes available the funds required on the pay-out day to meet the obligations on time.

Enrich your learning:

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

5.3.5 Depositories

A depository is an organisation created under Companies Act 1956 for the purpose of facilitating electronic transfer of securities in a dematerialized environment/form. The clients/investors do not open an account with the depository. Instead that job is performed by the agents of depositories known as depository participants.

There are 2 depositories in India, namely, NSDL & CDSL. A clearing member/Custodian opens a securities pool account (demat) with a depository participants of these depositories to make the securities available in the account on the settlement day. As per the instructions, the depository transfers the securities electronically.

5.3.6 Professional Clearing Members (PCM's)

Professional Clearing Members (PCMs) are special category of members who undertake to clear & settle trades done by the brokers/traders who have appointed them to do the job. They take the responsibility of clearing the trades done by their clients & in no circumstances; they perform the task of trading.

The clearing banks and the depository act as an interface between the NSCCL and the clearing members/custodians. Let us now understand the process that is followed in settlement.

5.4 Settlement Process

There are basically three tasks that are performed in the process of buying and selling of securities. They are:

- Trading
- Clearing
- Settlement

Trading basically deals with putting an order and its execution. Clearing deals with determination of obligations, in terms of funds and securities. Settlement means that the trade will be completed and NSCCL acts as a counter party and takes an obligation for the same. It has created a faith in the investors that all the trades would be settled and in no case any investor will have to face any problem of insufficient funds and securities. NSCCL acts as a buyer to every seller and a seller to every buyer. This principle is called **novation**. In case of default by any party, the NSCCL takes action against the defaulter.

The following **steps** are followed in the settlement of a trade:

Determination	1	Step 1: Determination of obligations: Obligations are determined by NSCCL for the traders and acts as a central counter-party (CCP) to the members. It determines the obligations of the members as what they ought to give and receive on the due date.
Pay-in of Funds and Securities	2	Step 2: Pay-in of funds and securities: The members, after knowing their obligations, make available the funds and securities to NSCCL. The member's depository having obligation to pay-in the securities; get an instruction from the NSCCL to pass the required entry for the transfer of securities to them. For the members having an obligation to pay-in funds, NSCCL gives an instruction to the clearing banks for the same.
Pay-out of Funds and Securities	3	Step 3: Pay-out of funds and securities: After processing the shortages of funds and securities and arranging for the movement of the same, NSCCL sends out electronic instructions to the clearing banks/ depositories to pass the required entries for the same.
Risk Management	4	

Step 4: Risk management: Since there is a time lag between execution of trade and its settlement, there are chances of default. To minimize the risk of defaults, NSCCL has framed a comprehensive risk management and surveillance system. Under this, the organization keeps a check through various systems (on-line and off-line monitoring) and in case of default panelizes the respective trader for the same.

The following table shows the timings that are followed in the process of settlement.

Table 5.1: Revised timing of settlement process

Day	Timings	Job Performed
T (Trade Day)	9.55 A.M. to 3.30 P.M. (Market Timings)	Buy/Sell of Securities
T+1	By 11.00 A.M.	Confirmation of all trades
	By 1:30 P.M.	Processing and downloading of files to brokers/custodians
T+2	By 11:00 A.M.	Pay-in of securities and funds
	By 1:30 P.M.	Pay-out of securities and funds

Enrich your learning

Settlement:

Table 5.2		
Month-Year	Settlement Quantity (Cr.)	Settlement Value (Cr.)
Aug-05	479	50,687
Aug-06	288	49,592
Aug-07	522	93,346

In August 2007, a total quantity of 522 cr. shares having a value of Rs. 93,346 cr. were settled in demat form in the stock exchanges connected to NSDL. Table 5.2 shows the settlement figures over the past three years.

5.5 Risks in Settlement

A sound risk management system is integral to an efficient clearing and settlement system. NSE introduced for the first time in India, risk containment measures that were common internationally but were absent from the Indian securities markets. Counter-party risk and System risk are **two kinds of risks** that are intrinsic in a settlement system. Let discuss these risks further in this section.

5.5.1 Counterparty Risk

This basically arises even if one of the parties does not discharge their obligation fully and on time. This broadly has two components, namely replacement cost risk i.e. pre-settlement risk and principal risk, which arises during settlement.

5.5.1.1 Replacement Cost Risk

A type of risk resulting from a situation in which a party to a trade knows that the counter party will be unable to meet the obligations of the trade, and thus a new replacement trade will have to be entered into. Hence known as "replacement-cost risk", which refers to the cost associated with replacing the original trade. Of course, there is a good chance that the above task will not be done at the same price, since the market has probably moved since the trade was first done.

For example, Ram sold 100 shares of Reliance at 10:00 am @ Rs.2600 without having them, in anticipation that the price of Reliance will fall during the day and he will cover his position intraday by buying those 100 shares at a lower price. His observations went wrong and instead of Reliance price falling it raised throughout the day and at 3:00 pm the price of a Reliance share was at Rs.3000. Resulting in a loss of Rs.400 per share * 100 shares = Rs.40000. He decides to inform his broker about his non-fulfilling of his commitment and delivering short his obligation of giving 100 shares of Reliance. The broker decides to cover this position of Ram on his own account by buying 100 Reliance to make his net obligation zero. By the time his order was executed the price of Reliance was at Rs.2900. Hence the replaced transaction was at a cost of Rs.300 per share. If Ram is unable to pay this cost, it will result as a replacement cost risk for the broker and in-turn to the system.

2 Principal Risk

Principal risk is the risk that arises when the buyer/seller has not received the shares/funds but has fulfilled his obligation of making payment/delivery of shares. This has been reduced by having a central counterparty such as NSCCL which becomes the buyer to every seller and the seller to every buyer.

For example, Ram bought 100 shares of Reliance on Monday @ Rs.2600 and made good his obligation by paying his broker Rs.2600*100 = Rs.2,60,000. As a result of this Ram is expecting a delivery of his 100 Reliance shares by T+2 days (Wednesday). If the counterparty (seller) to this transaction defaults in his commitment of giving delivery of these 100 shares and if the system does not assure giving back at least this money (principal) paid by the buyer, then this result's into a principal risk. As mentioned principal risk is reduced by having a central counterparty to all trades in the form of NSCCL. What NSCCL assures Ram is that he will get his 100 shares or his money Rs.2,60,000 will be returned back with some surplus (the penalty collected from the defaulting seller's broker), but instead on T+2 day (Wednesday) it will be given on T+5 day (Monday). NSCCL will make it possible by buying 100 shares for the buyer on behalf of the defaulting seller from the auction market. We will discuss the functioning of the auction market in the next chapter.

5.5.1.3 Liquidity Risk

Liquidity risk is the risk of that party which is unable to liquidate its position because of the default of another party. Suppose, the buyer has paid for the securities but has not received the delivery on time as the seller had short sold the securities. So the buyer will be able to sell his shares only when he receives the delivery after the NSCCL has bought them for the buyer on behalf of the seller from the auction market. So, here the buyer is bearing a liquidity risk because of the counterparty default.

For example, Ram bought shares on Monday, and normally he should get the shares on Wednesday but did not get them as the seller had defaulted. He will only get the shares on the following Monday when the NSCCL will buy the shares for the buyer on behalf of the seller from the auction market. Suppose, by this time, the prices went up, the buyer cannot off-load his holdings as he doesn't have the delivery of shares.

He will get the delivery only on Monday and may be the prices might go down by that time.

5.5.1.4 Third Party Risk

Another variant of counterparty risk 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 or commits fraud.

5.5.2 System Risk

Second set of risk in settlement is system risk which comprises of operational, legal and systemic risk.

5.5.2.1 Operational Risk

Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events. Such as, error, fraud, outages etc. Although the risks apply to any organisation in business it is of particular relevance to the financial/banking regime where regulators are responsible for establishing safeguards to protect against systemic failure of the system and in-turn the economy.

5.5.2.2 Legal Risk

Legal risk is risk from uncertainty due to legal actions or uncertainty in the applicability or interpretation of contracts, laws or regulations.

5.5.2.3 Systemic Risk

Systemic risk might arise when the default by one of the parties leads to the default of other parties too. This has a multiplying effect and can cause a failure in the system. To avoid such problems, the exchange has strict rules and regulations on margining, capital adequacy standards, settlement guarantee funds and legal backing for settlement activity. We will discuss this in the later chapters of this unit.

Summary/Recapitulation

- Clearing refers to the process of comparing trades before settlement date or the determination of the net obligations of the broker participants (for both securities and cash).

Introducing and Understanding Transaction Cycle

- The settlement process refers to the exchange of cash and securities on the contractual settlement date. The settlement date can be agreed upon at trade execution or can be prescribed by local trading conventions.
- Central counterparty (CCP) - A CCP acts as counterparty to every buy and sell trade, a process known as “novation”. NSCCL acts as a CCP in India for all the trades done on NSE. This process concentrates counterparty risk and provides settlement guarantee.
- The agencies which participate in the process of settlement are NSCCL, clearing members, custodians, depositories and NSE.
- There are several risks that may arise in the process of settlement. They are broadly classified as counterparty risk and system risk.

Let's revise - New Terms

- | | |
|---------------------------------|-------------------------|
| • Account period Settlement | • Rolling Settlement |
| • Clearing | • Settlement |
| • Transaction cycles | • NSCCL |
| • Novation | • Clearing Members |
| • Custodians | • Clearing banks |
| • Professional clearing members | • Risk Management |
| • Counter party risk | • Replacement cost risk |
| • Principal risk | • Third party risk |
| • Liquidity risk | • System risk |
-

Multiple Choice Questions – Time your efforts

- Q1.** Who settles the trades executed at NSE?
(a) NSDL
(b) Clearing members
(c) SEBI
(d) NSCCL
- Q2.** In the current scenario, which system is followed for settlement of cash market transaction?
(a) T+1
(b) T+5
(c) T+2
(d) T day
- Q3.** Who provides for electronic transfer of securities in the stock market?
(a) RBI
(b) Depositories
(c) Clearing Agencies
(d) SEBI
- Q4.** Name the depository from the list given below.
(a) NSE
(b) NSCCL
(c) NSDL

Introducing and Understanding Transaction Cycle

- (d) RBI
- Q5.** Who moves the securities available in the account of the members to the NSCCL?
(a) Clearing banks
(b) Custodians
(c) Clearing members
(d) Depositories
- Q6.** Which agency links Clearing Members & NSCCL for funds settlement?
(a) Clearing Banks
(b) Depositories
(c) Clearing members
(d) NSE
- Q7.** Name the special category of members admitted by NSCCL as clearing members.
(a) Supporting clearing member
(b) Custodians
(c) Registered clearing member
(d) Professional clearing member
- Q8.** The _____ risk arises from the failure of one of the parties in the transaction.
(a) Liquidity Risk
(b) Counter party risk
(c) Replacement cost risk
(d) System risk
- Q9.** Which risk arises if one of the parties in trade transaction does not settle the account on date but later?
(a) Liquidity risk
(b) Principal risk
(c) Replacement cost risk
(d) Third party risk
- Q10.** Which risk can be eliminated by having a central clearing corporation as a counterparty to all trades?
(a) Principal risk
(b) Third Party risk
(c) Counter party risk
(d) System risk

Answers:

- Q 1 (d) Q 2 (c) Q 3 (b) Q 4 (c) Q 5 (d) Q 6 (a) Q 7 (d) Q 8(C)
Q 9 (a) Q 10 (a)

Very short answer type:

- Q 1 What is a settlement cycle?
Q 2 When does one get shares/money from the broker?
Q 3 When does one deliver the shares/pay the money to broker?
Q 4 What is a rolling settlement?

Short answer type:

Introducing and Understanding Transaction Cycle

- Q 1 What is meant by pay-in and pay-out of funds and securities?
- Q 2 What do you mean by counterparty risk? Explain with the help of an example.
- Q 3 Explain the purpose of inception of NSCCL.
- Q 4 What is system risk and how does it arise?

Long answer type:

- Q 1 What are the various agencies involved in clearing and settlement? Explain any two.
- Q 2 List the procedure followed in the settlement process.
- Q 3 What is a transaction cycle? Explain with the help of a diagram.