

MANAGEMENT OF CASH

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INTRODUCTION

Cash is the most liquid asset. Cash is common denominator to which all other current assets can be reduced because receivables and inventories get converted into cash. Cash is lifeblood of any firm needed to acquire supply resources, equipment and other assets used in generating the products and services. Marketable securities also come under near cash, serve as back pool of liquidity which provide quick cash when needed.



MANAGEMENT OF CASH

Although cash is only 1-3% of total current assets but its management is very important.

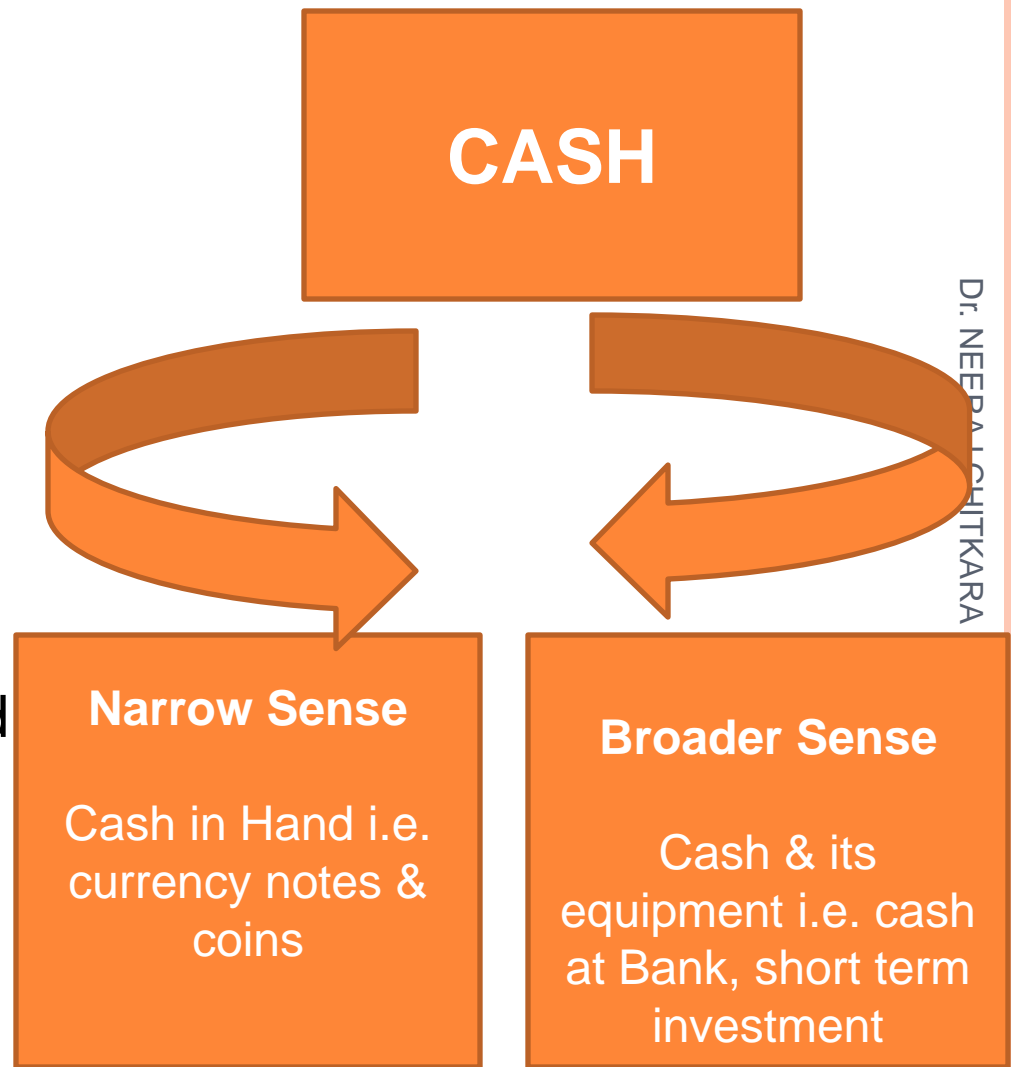
Management of cash includes:

- Determination of optimum amount of cash required in the business.
- To keep the cash balance at optimum level and investment of surplus cash in profitable manner.
- Prompt collection of cash from receivables and efficient disbursement of cash.



MEANING OF CASH

- For the purpose of cash management, the term cash not only includes coins, currency notes, cheques, bank draft, demand deposits with banks but also the near cash assets like marketable securities and time deposits with bank because they can readily converted into cash.



MOTIVES FOR HOLDING CASH

In business cash is needed for the following motives:

- Transaction Motive :

i.e. to purchase raw material & to pay for operating expenses

- Precautionary Motive :

to meet the future contingencies such as :

- Floods, strikes and failures of important customers
- Bills may be presented for settlement earlier than expected
- Unexpected slow down in collection of accounts receivables
- Cancellation of some order for goods as the customer is not satisfied
- Sharp increase in cost of raw materials



- **Speculative Motive** : The speculative motive helps to take advantages of:
 - An opportunity to purchase raw materials at a reduced price on payment of immediate cash.
 - A change to speculate on interest rate movements by buying securities when interest rates are expected to decline.
 - Delay purchase of raw materials on the anticipation of decline in prices.
 - Make purchase at favorable prices.
- **Compensating Motive** :

Yet another motive to hold cash balances is to compensate banks for providing certain services and loans.



OBJECTIVES OF CASH MANAGEMENT

- To maintain optimum cash balance.
- To keep the optimum cash balance requirements at minimum level by prompt collection & late disbursement etc.



FACTORS TO BE CONSIDERED WHILE DETERMINING THE OPTIMUM CASH BALANCE

- Synchronization of cash flows.
- Cash shortage costs.
- Excess cash balance costs.
- Procurement and management costs.
- Compensating balance.
- Uncertainty.
- Firm's capacity to borrow in emergence.
- Efficiency of Management

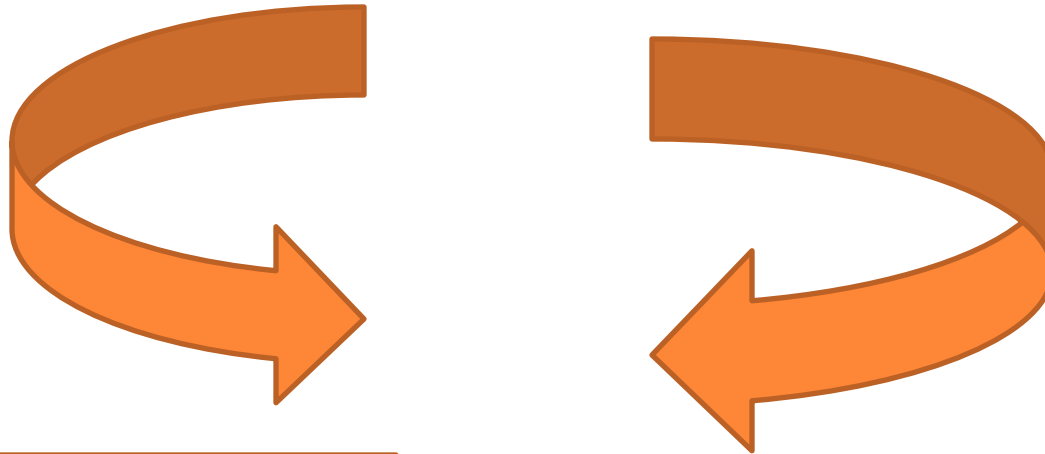


CASH SYSTEM

The cash system of a firm is the mechanism that provides the linkage between cash flows. The financial manager of the firm has the responsibilities, at least in part, of developing and maintaining the policies and procedures necessary to achieve an efficient flow of cash for the firm's operations.



ELEMENTS OF CASH SYSTEM



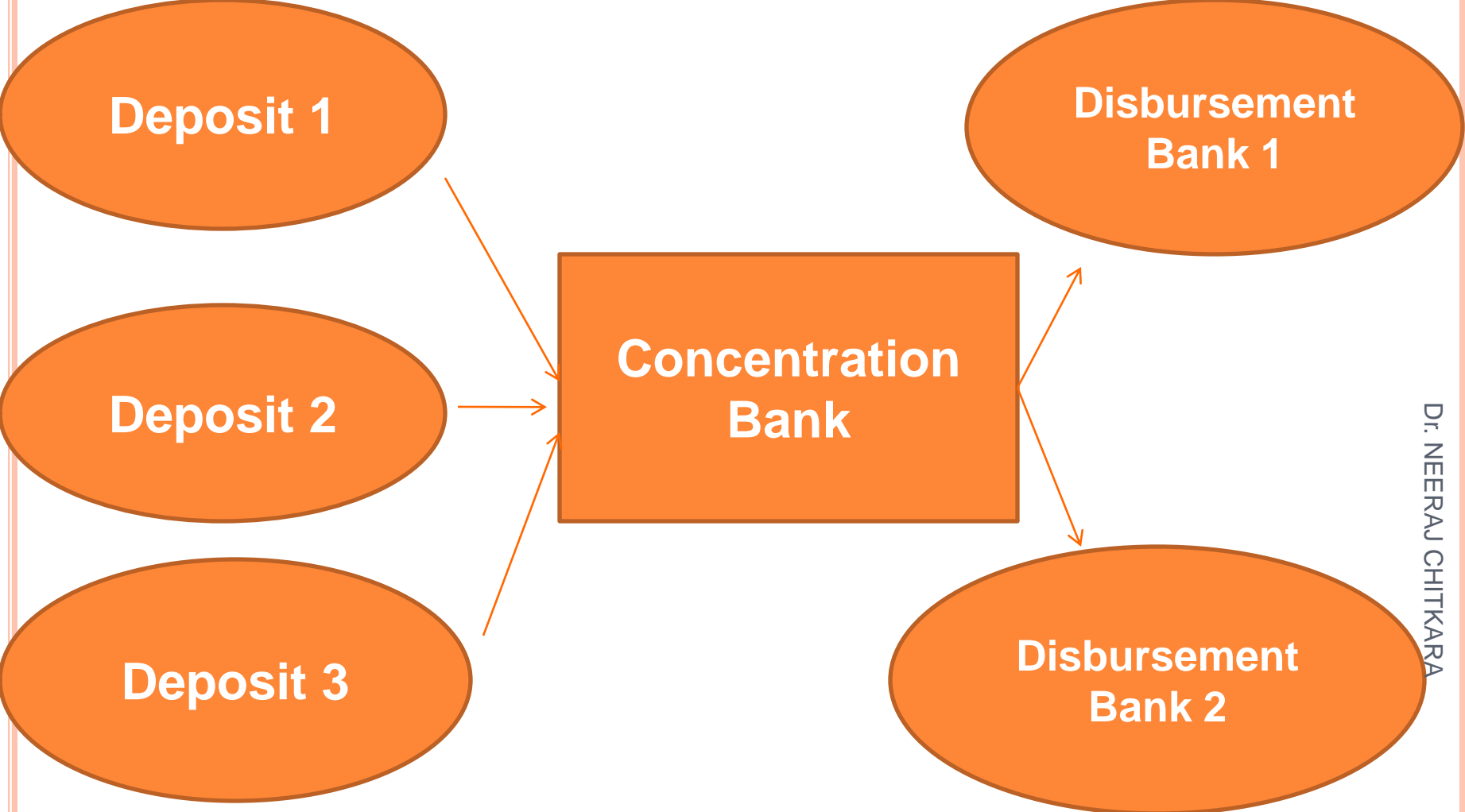
EXTERNAL

COLLECTION
DISBURSEMENT

INTERNAL

CONCENTRTION
DISBURSEMENT
FUNDING





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ELEMENTS OF CASH SYSTEM



FLOATS

- The amount of money tied up in cheques that have been written but yet to be collected and encasheed.

Types of Floats

1. Collection Float

It refers to the total time gap between the mailing of the payment by the payer and the availability of cash in bank.



2. Mail Float :

It results from the time that elapse from the mailing of cheque until it receipt.

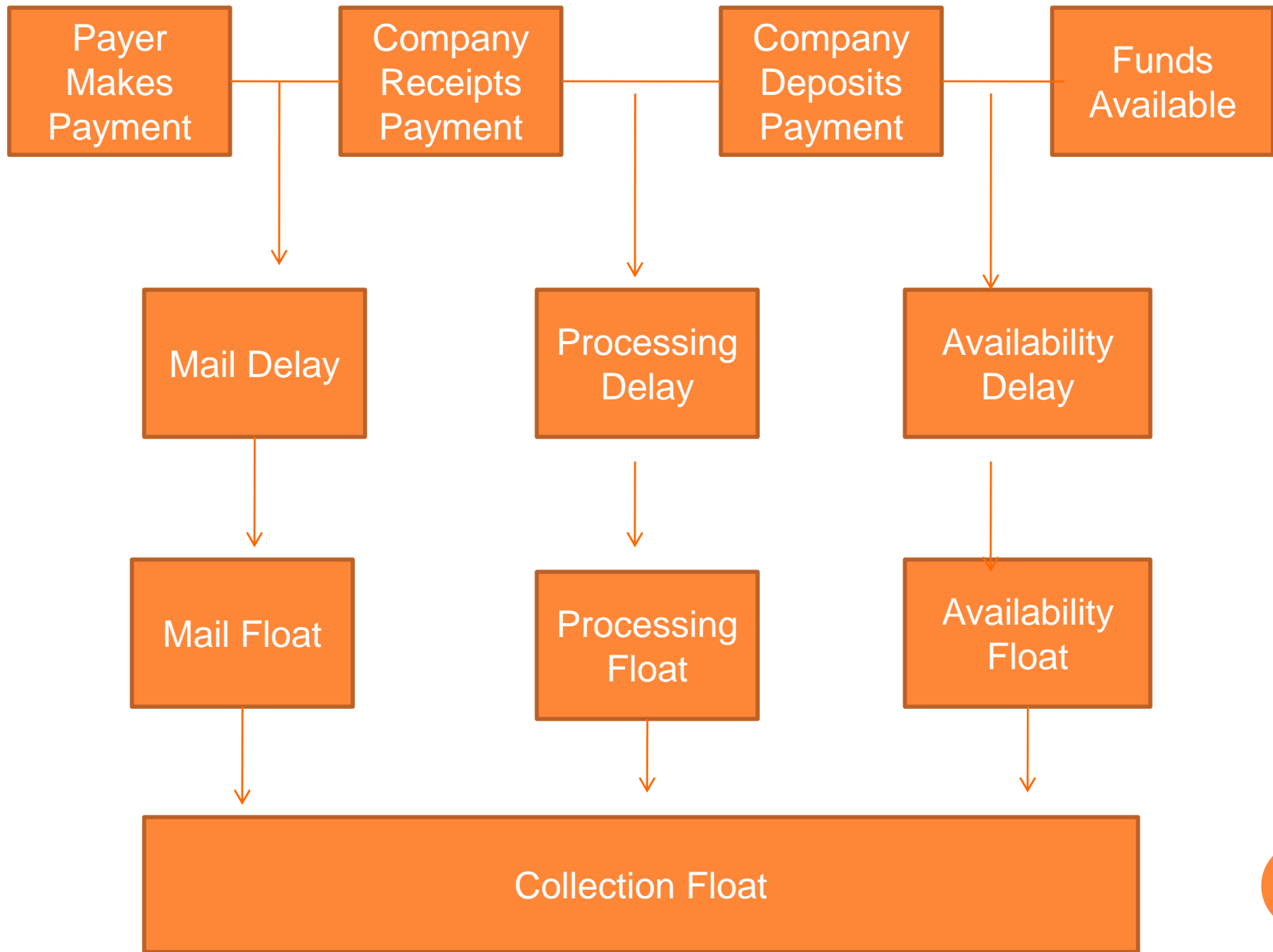
3. Processing Float:

It is due to the processing time before the cheque is deposited into the bank.

4. Availability Float :

It includes the time gap which is consumed in the clearance of cheque.





MANAGING THE CASH FLOWS

The task of managing the cash flows is of two fold i.e.

Acceleration cash collections:

- Establishment s of collection centers.
- Lock box systems.

Slowing Disbursements:

- Avoidance of early payments
- Centralized disbursements
- Float (payments through cheques)
- Accruals



DESIGNING OF A COLLECTION SYSTEM

- Numbers of collection points
- Location of Collection point
- Internal and external operations of collection point
- Assignment of individual payers to collection point
- Capture and movement of information's about the payment



OPTIMIZING COLLECTION SYSTEM

- Reducing floats costs by speedy availability of cash in banking system
- Reducing operating cost of collection system
- Reducing operating cost of managing the system
- Reducing mail floats
- Reducing processing floats
- Reducing availability floats



TYPES OF COLLECTION SYSTEMS

○ Over the counter collection

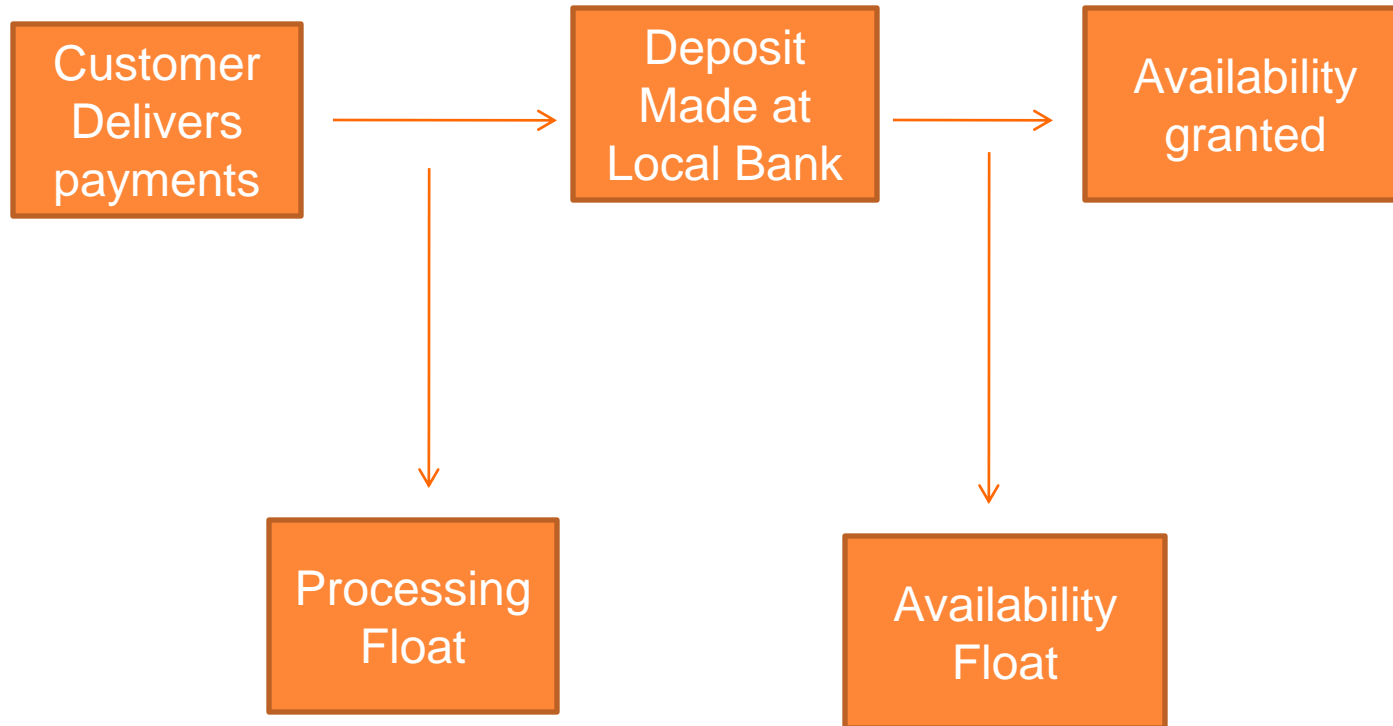
It is the system where the payment is received in face to face meeting the customers. Mostly retail or customer business receive full or at least some part of their payments on the over the counter basis. Since payments are not mailed, an over the counter system does not contain mail float.

Basic Components

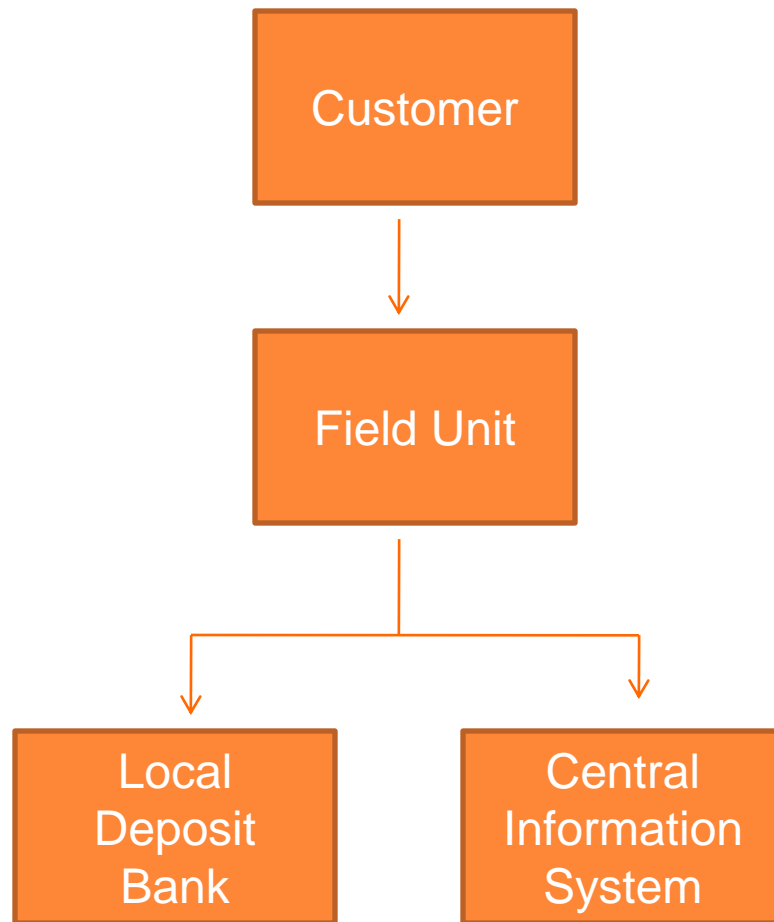
It includes the field unit at which the payment is received, a local deposit bank that serve as the entry point for the firms banking system and an input into the firms central information system.



Cash Flow time line for an Over The Counter Collection System



Components of A Collection System for Over The Counter Receipts



DESIGNING THE SYSTEM FOR OVER THE COUNTER COLLECTION

- Types of Payment accepted
- Field Office Location
- Selection of deposit Banks
- Bank Compensation
- Information gathering



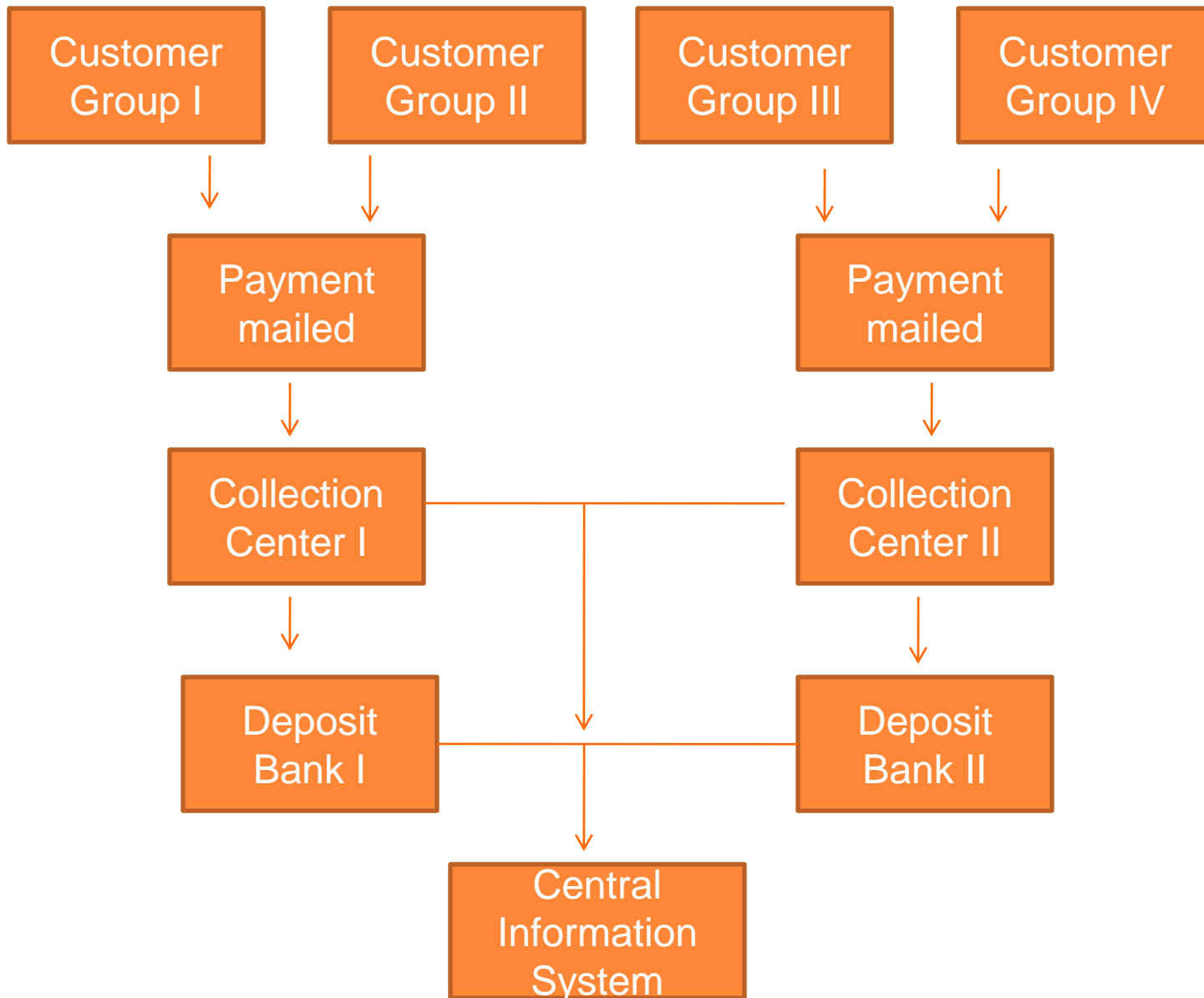
(II) MAILED PAYMENT COLLECTION SYSTEM

Many companies receive payments through cheques mailed by customers in response to an invoice. A mailed payment system contains all three components of collection float i.e. mail float, processing float, float & availability float.

Basic Components

It consists of collection centers, deposit banks and an information system. Payments are mailed by customers to a designated collection centre operated by company or by an outside agent. Payments are processed at collection centre; cheques are encoded; the deposit is prepared and made and the data are transmitted to the companies information system.





DESIGNING SYSTEM FOR MAILED PAYMENT COLLECTION

- Number of collection points
- Collection point location
- In house v/s external operation (self collection or by external party)
- Payer assignment (allotment of collection point to customers)



OTHER COLLECTION SYSTEMS

- Pre authorized payments:

Pre authorized cheques, drafts etc. are sometimes used when the payment amount and payment dates are specified in advance. On the agreed date the payee initiates the value transfer from the payer through the banking system. This collection system eliminates the mail float, reduce processing and availability and improve both parties forecasting ability.



LOCK BOX SYSTEM

A lock-box is a post office box number to which some or all the firm's customers are instructed to send their cheques. The firm grants permission to its bank to take these cheques and immediately send them in the clearing process.

In lock-box location analysis the following areas should be taken into mind:

- Determining customer zone.
- Obtaining bank cost data
- The cost of floats



CASH CONCENTRATION STRATEGIES

A Concentration bank is simply a bank designated by the firm to perform three main tasks:

1. Receive deposits from banks in the firms collection system.
2. Transfer funds to the firms disbursement banks.
3. Serve as the local point for short-term credit and investment transactions.

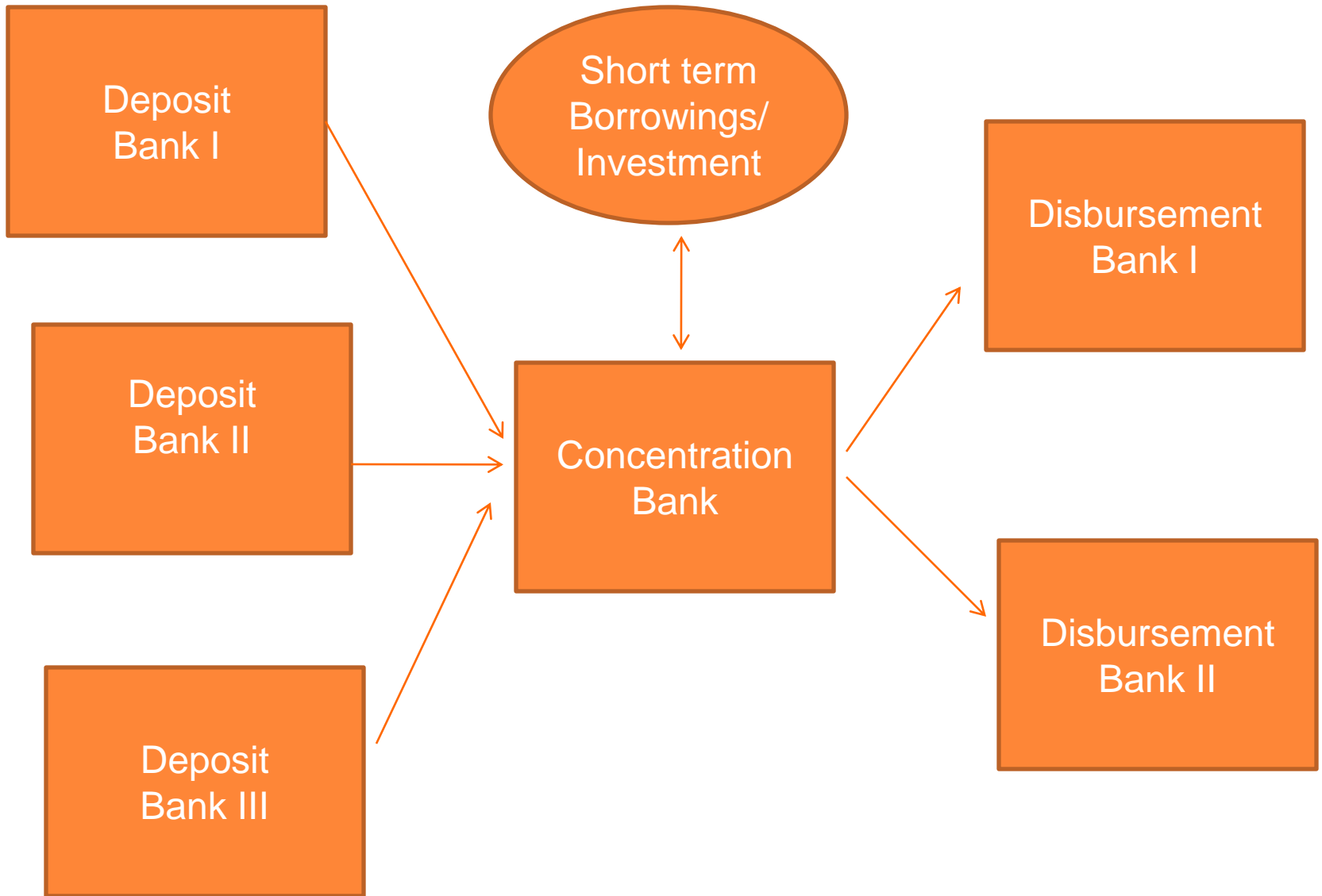
It is useful for the firms to collect the deposits from lockbox banks to central bank account. This process of collecting funds is called cash concentration.



ADVANTAGES OF CONCENTRATION

1. The collection process results in a larger pool of funds that makes any temporary interest earning investment more economical.
2. With all the cash in the central location, control over the cash is simplified.
3. It simplifies short-term financing and investment decisions.

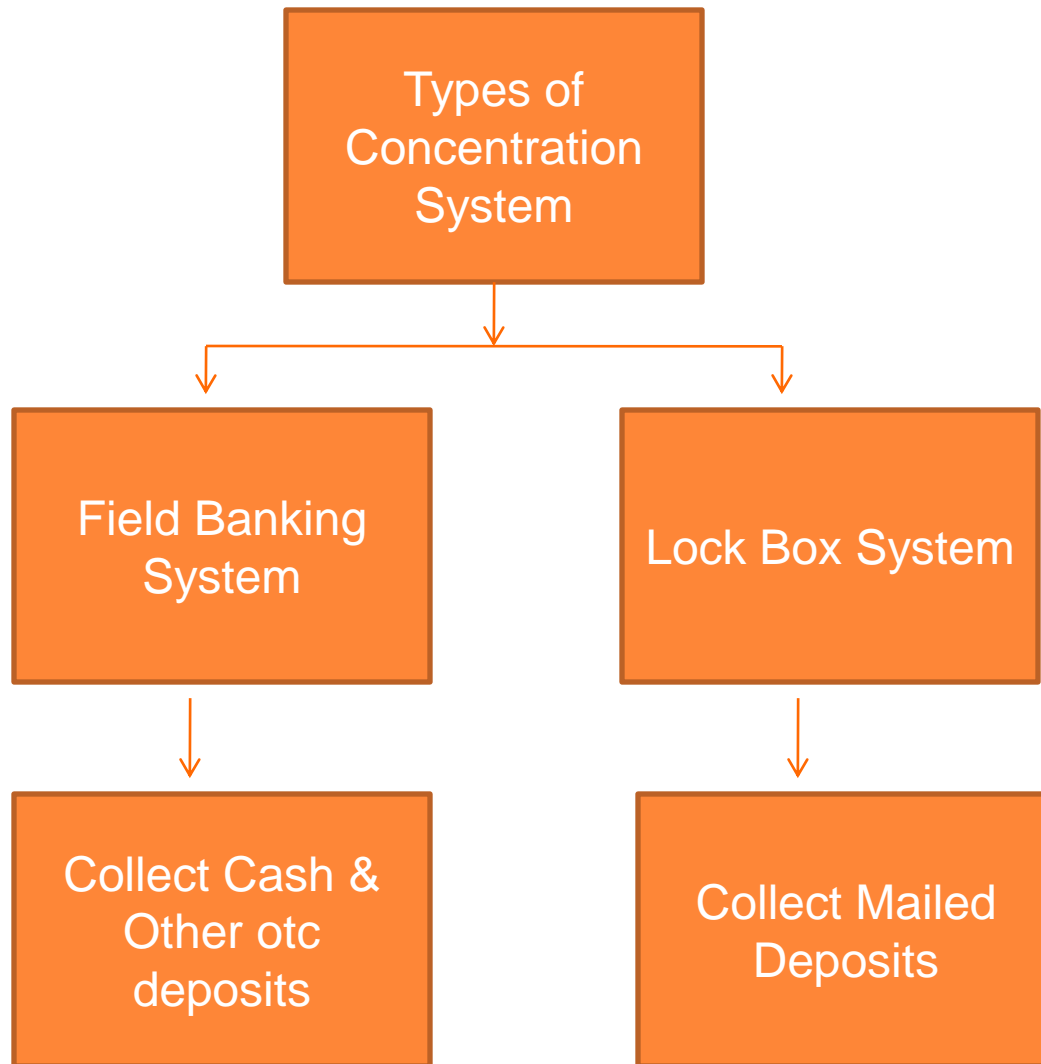




OBJECTIVES FUNCTIONS OF CASH CONCENTRATION

- Minimize opportunity cost of excess balance.
- Minimize transaction cost.
- Minimize administrative cost of maintaining.
- Minimize cash control cost.





Features	Field System	Lock-Box System
No. of Banks	Usually many	Few
Bank Size	Small	Large
Source of Deposits	Over the counter collections	Mail Payments
Geographical	Bank should be near to collection centre	Bank can be any where
Size of Deposits	Small	Large
Types of Deposits	Cash & Cheques	Only Cheques
Availability	Usually Immediate	Often delayed by availability scheduled
Information from Banks	Monthly Statements	Daily
Service Offered	Cash deposits & Transfer	Wide variety, sometimes credit also

DISBURSEMENT SYSTEM

It includes the banks, delivery mechanism and procedures the firms used to facilitate the movement of cash from the firm's centralized cash pool to disbursement banks and then suppliers.

Disbursement banks are bank upon which disbursement cheques are drawn. It may be more complex than collection system. It generally falls under more direct control of head Quarters.

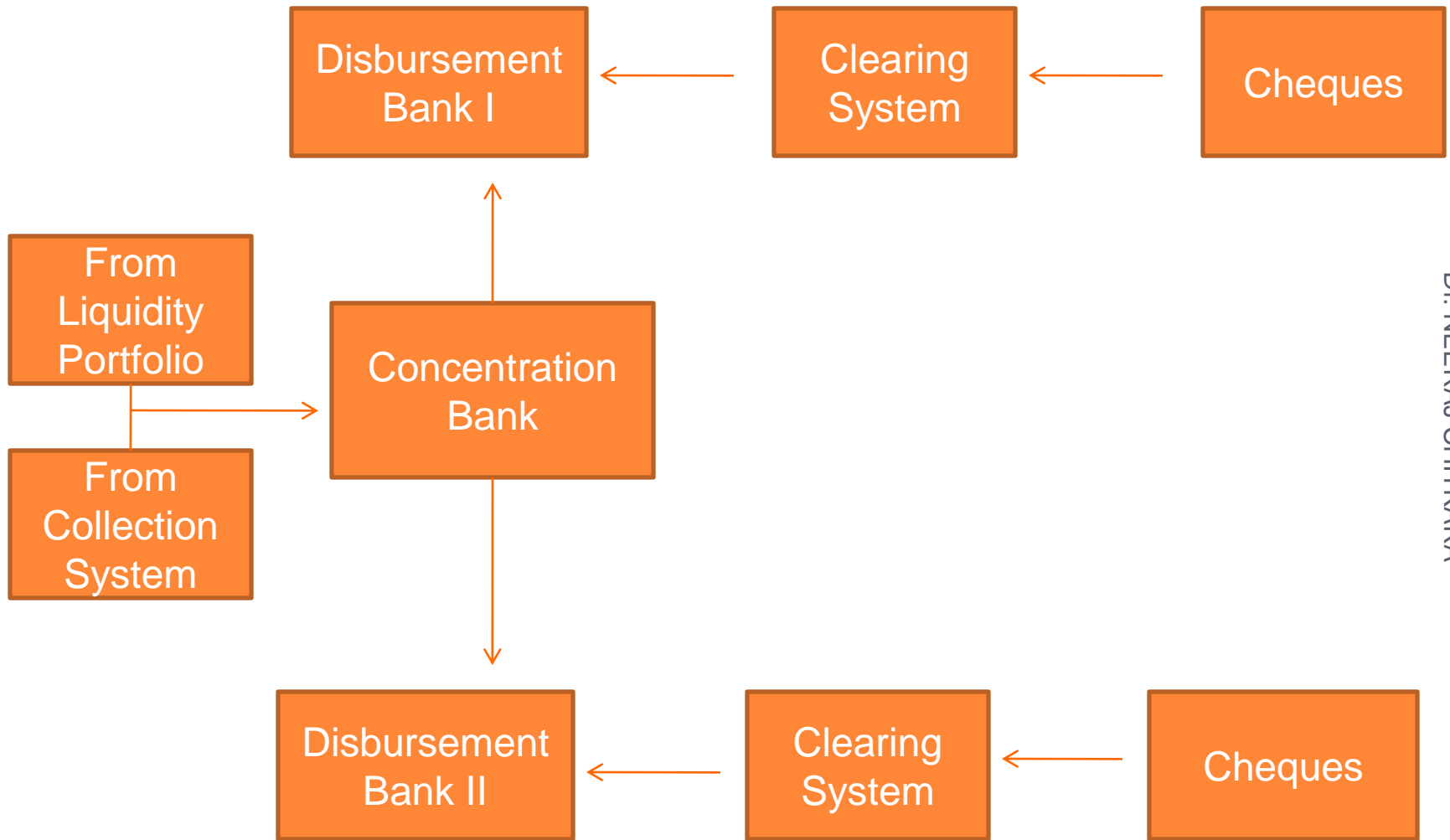
The concentration bank serve as value between firm's collection system, liquidity portfolio and disbursement bank.



OBJECTIVE FUNCTIONS OF DISBURSEMENT SYSTEM

- Maximum value of disbursement floats
- Minimum loss of discount for early payment
- Minimum transaction cost, Information costs, Administration cost & control costs.
- Maximum Value of Payee relation.
- Centralized disbursement.





TYPES OF DISBURSEMENT DECISIONS

Strategic Decisions

- Selection of Disbursement banks
- Selection of concentration bank
- Disbursement payment and account funding mechanism
- Level of authority for authoring disbursement
- Policies for determining when and how much to pay



Tactical Decisions

- Disbursement authorization
- Funding amount and time
- Payment preparation and release
- Drawee bank selection
- Mail Point



DISBURSEMENT TOOLS

Commercial banks and other providers offer a number of tools and assist managers in designing efficient disbursement systems.

1. **Zero Balance System** :

It is the common strategy for funding disbursement as the cheques are presented. In this strategy an account for disbursement is first established at a bank. For the effectiveness, the participatory bank must be one on which most disbursements are made via the clearance system (only in the morning) and not the bank where disbursement occurs throughout the day. The banks used in zero balance strategies are usually branches of major banks but not at the main locations.



CLEARANCE PROCESS

As implied by name firm don't Keep any permanent stock of cash in this account. Instead the participatory bank agrees that when the morning disbursement for firm presented to it, bank will advise to the firm of the amount of cash required to these disbursements. The money will then be wire transferred into the zero balance account and the cheques will be honoured. In this way the disbursing firm's cheques are honoured as they are presented, but the firm does not tie up cash while the cheques are in mail and while they are clearing.



CONTROLLED DISBURSEMENT

If the zero balance system is not feasible, another is the use of controlled disbursement which is often used when the firm's disbursement bank receives cheques for clearance throughout the day. In this system, the firm projects the amount of cheques to arrive each day at the disbursement bank and transfers the amount of expected cheques to the account on that day or just before. Of course, the firm does not know what outstanding cheques will be presented on any particular day; to hedge the uncertainty the firm keeps a safety stock of cash in this account. The amount of safety stock may be calculated if the probability distribution of disbursement is known.

In this system the firm also uses the bank overdraft facility.



INVESTMENT IN MARKETABLE SECURITIES

The management of investment in marketable securities is an important financial management responsibility because of the close relationship in between cash and marketable securities. Once the optimum level of cash is determined the residual of its liquid assets is invested in marketable securities.



SELECTION CRITERIA

The choice of cash and investment mix is based on tradeoff between opportunity to earn a return on idle fund during holding period and brokerage cost associated with purchase and sale of securities. The following points must be consider before selecting the securities:

- Financial / default risk
- Interest rate risk
- Taxability
- Liquidity
- Maturity
- Yield available



MARKETABLE SECURITIES

- Treasury bills
- Certificate of deposits
- Commercial papers
- Repurchase agreement
- Inter corporate deposits and bills discounting
- Call market instruments



DETERMINATION OF THE OPTIMUM LEVEL OF CASH BALANCE

In order to invest the excess funds the financial manager must know the minimum amount that must cyclical requirements make it difficult to ascertain the amount of exactly. A range of cash models which help the financial manager to estimate the cash requirements are discussed below:

BAUMOL MODEL

In this model the firm is assumed to receive cash periodically but has to pay out cash continuously at a steady rate i.e. the firm's inflows are lumpy but its outflows are not. When a firm receive cash, the firm puts enough cash in its disbursement account to cover outflow until the next inflows is received.



ASSUMPTIONS

- Investment will yield a fixed rate of return per period regardless of the length of investment
- Transaction cost of investing and disinvesting is a fixed cost i.e. independent of the amount of investment.

Appropriate strategy for investing the funds until they are needed:

- Two transaction strategy
- Three transaction strategy



TWO TRANSACTION STRATEGY

- When the cash inflows is received, Invest one half of the total inflow, put the remaining one half in the Disbursement Account.
- During the first half of period, Pay Disbursements from the disbursement account. This account will be drained one half of the way through the period. At that time sell the investments and place the resulting funds in the disbursement account.
- Use these funds to pay disbursements during the remainder of the period.
- Investment Income= $(1/2)(1/2)iy$
- Profit= $(1/4)iy-2a$



THREE TRANSACTION STRATEGY

- When the cash inflows is received, Initially invest Two-Third of it. Place the remaining One-Third in the disbursement account.
- One-Third of the way through the period, The disbursements account will be exhausted. At this time, disinvest half of the funds in the investment account(The amount is $(1/2)(2/3)y=(1/3)y$ and put this in the disbursement account. Leave the remaining $(1/3)y$ in the investment account and move the proceeds to the disbursement through the remainder of the period.
- Interest Income= $(2/3)(1/3)iy+(1/3)(1/3)iy=(1/3)iy$
- Profit= $(1/3)iy-3a$



NUMBER OF TRANSACTIONS

- $N = (iy/2a)^{1/2}$

Limitations

- Return is not same in all Markets.
- Transaction cost is not always fixed but varies.
- Limited use.



THE BERANEK MODEL

- Bernak hypothesized that firms where the cash inflows were steady, but the outflows were periodic.
- This is mirror image of the time pattern of cash flows with in the baumol model, where inflows were periodic and outflows were steady.
- The challenge is to profitability invest the funds between the time of the receipt and at the time when a group of cheques are presented to the bank for payments.



THE MILLER-OOR MODEL

- Miller-OOR Model incorporate uncertainty explicitly with in the strategies which they derive.
- The major deference between the miller-oor model and the prior two models concerns the assumed time pattern of cash flows.



ASSUMPTIONS

- Cash flows are normally distributed.
- Firm has minimum required cash balance at a particular time.
- There is no auto correction in cash flow.
- The standard deviation of cash flows never change for a long time.



CONTROL-LIMITS APPROACH

- The miller-orr cash management model is basically an application of control –limits theory to the cash / investment decision. Control-limit are set up using the formula derived by miller-orr.
- When the firms total cash goes outside the upper control limit, investment are made to bring the cash balance back down to the return point.
- If below the lower control limit, disinvestment are made.



FORMULA

- $R = (3av/4i)^{1/3}$
- If L is the lower control limit (Set by management, the optimal return point is $R+L$.
- The optimal Upper Control is $3R+L$.
- A =transaction cost, V =variance of daily cash flows, I =daily interest rate on investment.



LIMITATIONS

- Cash Flows can not be same.
- Rate of Interest can not be same.



STONE MODEL

- Like the Miller-OOR Model, the Stone Model takes a control limit approach, but in stone model the signal does not automatically result in an Investment or Disinvestment.
- The recommended action depends on the management's estimates of future cash flows : that is the model signals an evaluation by management rather than an action.
- To do this stone model uses two sets of control limits, the inner control limits (n ULC, LCL1) and the outer control Limits (UCL2, LCL2).



ASSUMPTIONS

- Firm has minimum required cash balance.
- Firm has some knowledge of future cash flows. Out of this knowledge contains an error component.



STRATEGY

- The firm performs an evaluation until its cash balance falls outside the outer control limits.
- When this occurs, the firm looks ahead by adding the expected cash flows for the next few days to the current balance.
- If the sum of the current balance and these expected future cash flows (which is expected cash balance a few days hence) Falls outside the inner control limits, A transaction is made, otherwise, the transaction is foregone.

