Deposit Management

Introduction

- **Deposits are a key element in defining what a banking firm really does and what critical roles it really plays in the economy**
- **Moreover, deposits provide much of the raw material for making loans and, thus, may represent the ultimate source of profits and growth for a depository institution**
- **Two key issues every depository institution must deal with in managing the public's deposits**
  1. **Where can funds be raised at lowest possible cost?**
  2. **How can management ensure that the institution always has enough deposits to support lending and other services the public demands?**

Types of Deposit Accounts

- **Demand Deposits**
  - **Funds deposited can be withdrawn by the depositor at any time without any advanced notice to banks. The ownership of demand deposits can be transferred from one person to another via cheques or electronic transfers. There is no fixed term to maturity.**
- **Two Types of demand deposits**
  - **Savings Accounts**
  - **Current Accounts**

Types of Deposit Accounts …

- **Savings Accounts**
  - **Accrue interest at a fixed rate set by the commercial banks.**
  - **restrictions on the number of withdrawals as well as on the amounts of withdrawals during any specified period.**
  - **Minimum balances may be prescribed in order to offset the cost of maintaining and servicing such deposits**
- **Current Accounts**
  - **The bank is obliged to pay the money on demand.**
  - **The Current accounts don’t bear any interest**
  - **Cost to maintain the accounts is high and banks ask the customers to keep a minimum balance**

Types of Deposit Accounts …

- **Term Deposits**
  - **Deposits with fixed tenure**
  - **Interest rate depends upon the tenure and amount of deposit.**
  - **This rate varies from bank to bank.**
  - **The interest rate is generally higher for time deposits of longer tenure**
- **Three types of term deposits**
  - **Fixed deposits**
  - **Re-investment deposits**
  - **Recurring deposits**

Types of Deposit Accounts …

- **Fixed deposit**
  - **A fixed rate of interest is paid at fixed, regular intervals**
- **Re-investment deposit**
  - **Interest is compounded quarterly and paid on maturity, along with the principal amount of the deposit. In the Flexi Deposits amount in savings deposit accounts beyond a fixed limit is automatically converted into term-deposits.**
- **Recurring deposit**
  - **Fixed amount is deposited at regular intervals for a fixed term and the repayment of principal and accumulated interest is made at the end of the term**

Types of Deposit Accounts …

- **Non Resident Ordinary Accounts: (NRO):** Any person resident outside of India can open this account. When a resident becomes a non resident, his domestic rupee account gets converted into the NRO account. This helps the NRI to get his credits which accrue in India.
- **Non-Resident (External) Rupee Account:** It's a Rupee account and the NRI can remit money to India from the funds abroad.
- **Foreign Currency Non-Resident Account: (FCNR):** This account is opened by the NRIs in 6 designated currencies as follows: US Dollar (USD) Great Britain Pound (GBP) Euro (EUR) Japanese Yen (JPY) Canadian dollar (CAD) and Australian dollar (AUD)

Nominal versus Effective Rate

Apart from the annual compounding, if the interest is compounded ,monthly/quarterly/half-yearly, the effective rate of interest for such periods will be different from the nominal rate

$$R = \left(1 + \frac{k}{m}\right)^m - 1$$

where,

R=effective Rate

k=Nominal Rate

m= Frequency of compounding per year

Nominal versus Effective Rate: Example

If the nominal rate of interest on a 2 year term deposit is 10 percent and if the interest amount is compounded on a quarterly basis then the effective rate can be assessed as:

$$R = \left(1 + \frac{0.1}{4}\right)^4 - 1 = 10.38\%$$

Reinvestment Scheme

To ascertain maturity amount in a re-investment scheme, the following expression can be used:

$$RI_m = RI(1 + r)n$$

where,

RI_m = Deposit amount at the end of the reinvestment period

RI = Initial deposit amount

r = Effective rate = $\left(1 + \frac{k}{m}\right)^m - 1$

n = Number of years

Reinvestment Scheme: Example

If a depositor opens a re-investment account at ABC Bank Ltd. the interest rate offered will be 10% for 1 year scheme, 11% for 2 years scheme and 12 % for 3 year scheme. Find the maturity amount for a quarterly re-investment of INR 20,000 for a period of 2 years

Solution:

The amount at the end of re-investment period can be assessed as follows:

$RI_m = RI(1 + r)^n$

$= 20000(1+r)^2$

Since the quarterly re-investment ,

$r = (1 + \frac{0.11}{4})^4 - 1 = 11.46\%$

$RI_m = 20000(1+0.1146)^2 = 24846.66$

Cash Certificate

Issue Price= PV = Face Value($PIVFA_{n,k}$)

where,

N = Tenor

K = Interest rate

Cash Certificate

Given that interest rate is 14% p.a. on a certificate having a value of INR 100 after 1 year, calculate the issue price of the cash certificate

Solution:

Since it is reinvested quarterly;

Effective rate (r) = $\left(1+\frac{k}{m}\right)^{m}-1=\left(1+\frac{0.14}{4}\right)^{4}-1$ **= 14.75%**

Issue Price= PV = Face Value(PIVFA$_{n,k}$)

$=\frac{100}{(1+k)^{n}}=\frac{100}{(1+0.1475)^{1}}=INR\ 87.14$

Recurring Deposit Scheme

To arrive at the amount on maturity, the future value of annuity is be calculated as:

$RD_m = RD(FVIFA_{n,k})$

where,

RD_m = **Maturity value of deposit**

RD = **Installment amount**

Recurring Deposit Scheme

Compute the maturity value of a monthly installment of INR 1000 for 12 months, if the interest rate applied is 8 percent p.a. and computed quarterly

Effective rate (r) = $\left(1+\frac{k}{m}\right)^{m}-1=\left(1+\frac{0.08}{4}\right)^{4}-1$ **= 8.24%**

Rate of interest per month = 0.69%

Maturity value = FVA_n = $A[FVIFA_{n,k}]$ = A $\left[\frac{(1+k)^{n}-1}{k}\right]$ **=** $1000\left[\frac{(1+0.0069)^{12}-1}{0.0069}\right]$

= INR 12463.77

Pricing of Deposits

- **Management needs to pay a high enough interest rate to customers to attract**
- **But must avoid paying interest rate so costly that it erodes the potential profit margin from using customer funds**

Pricing Deposits

- **Development of interest bearing chequable deposits offered financial managers the opportunity to consider the pricing of deposit services : *below cost pricing***
  - **Customer charges were set below the true level of operating and overhead costs associated with providing deposit services**
  - **Substantially increased rate of return to customer known as *implicit interest rate* – the difference between the true cost of supplying fund-raising services and the service change actually assessed to customer**

Pricing Deposits at Cost Plus Profit Margin

- **Deregulation increased competition, and raised the average real cost of a deposit for deposit service providers**
- **More frequent use of unbundled service pricing**
  - **Deposits were priced separate from other services**
- **Each deposit service is often priced high enough to recover all or most of cost of providing that service using the cost-plus pricing method:**

Unit price charged the customer for each deposit service	=	Operating expense per unit of deposit service	+	Estimated overhead expense allocated to deposit service function	+	Planned profit margin from each service unit sold

Pricing Deposits at Cost Plus Profit Margin

Estimating deposit services cost:

- **Tying deposit prices to cost of deposit –service production has encouraged service providers to match prices and costs more closely and eliminate many formerly free services**
- **Cost plus pricing demands an accurate calculation of the cost of each deposit service**
- **This requires management to**
  1. **Calculate the cost rate of each source of funds (adjusted for reserves required by the central bank, deposit insurance fees, and float)**
  2. **Multiplying each cost rate by the relative proportion of all funds coming from the popular sources**
  3. **Sum of all resulting products to drive the weighted average cost of all funds raised**
- **This pooled-funds cost approach is based on assumption that it is not the cost of each type of deposits that matter, rather the weighted average cost of all funding sources for each depository institution**

Pricing Deposits at Cost Plus Profit Margin: Example

Problem:

- Suppose a depository institution has raised a total of $800 million
  - ✓ Amount as checkable deposits $200 million
  - ✓ Amount in saving and time deposit $400 million
  - ✓ Amount borrowed from money market $100 million
  - ✓ Amount from owners in form of equity capital $100 million
- Equity capital costs an estimated 22% of any new capital raised
- Interest and non interest costs spent to attract :
  - ✓ Checkable deposit: 10% of checkable deposit
  - ✓ Thrift deposit: 11% of thrift deposit
  - ✓ Money market borrowing: 11% of money market borrowing
- Reserve requirements, deposit insurance fees and uncollected balances reduce amount of money by:
  - ✓ 15% for checkable deposits
  - ✓ 5% for thrift deposits
  - ✓ 2% for borrowing in the money market

Pricing Deposits at Cost Plus Profit Margin: Example

Solution:

Institutions weighted average before-tax cost of funds would be:

$$(Checkbook\ deposits \div Total\ funds\ raised) \times \left(\frac{Interest\ and\ noninterest\ fund\ raising\ costs}{100\% - \%reserve\ requirements\ and\ float}\right)$$

$$+ (Time\ \&savings\ deposits \div Total\ funds\ raised) \times \left(\frac{Interest\ and\ noninterest\ fund\ raising\ costs}{100\% - \%reserve\ requirements\ and\ float}\right)$$

$$+ (Owner's\ capital \div Total\ funds\ raised) \times \left(\frac{Interest\ and\ noninterest\ costs}{100\%}\right)$$

=$200 million/$800 million X 10% /(100% - 15%)
+$400 million/$800 million X 11% /(100% - 5%)
+$100 million/$800 million X 11% / (100% - 2%)
+$100 million/$800 million X 22% / 100%
=12.88%

Using Marginal Cost to Set Interest Rates on Deposits

Marginal Cost Approach:

- Marginal cost: added cost of bringing new funds
- Marginal and not historical average cost should be used to to help price funds
- Frequent changes in interest rate makes historical average costs a treacherous standard for pricing
  - If interest rates are declining, marginal cost of raising new funds may fall below historical average cost over all funds used
  - If interest rates increase, marginal cost of today's new money may substantially exceed the historical cost

Using Marginal Cost to Set Interest Rates on Deposits

Marginal cost= Change in total cost = (New interest rate X Total funds raised at new rate) – (Old interest rate X total funds raised at old rate)

and

$$Marginal\ cost\ rate = \frac{Change\ in\ total\ cost}{Additional\ funds\ raised}$$

Marginal cost approach Example

Expected amounts of deposits that will flow in	Average interest the bank will pay on new funds	Total interest cost of new funds ($)	Marginal cost of new deposit money ($)	Marginal cost as a percentage of new funds attracted (%)	Expected marginal revenue (return) from investing the new funds	Difference between marginal revenue and marginal cost rate	Total profits earned (after interest cost) ($)
30	7%	2.10	2.1	8.4%	10%	2%	0.900
60	7.50%	4.50	2.4	9.6%	10%	0%	1.500
90	8%	7.20	2.7	10.8%	10%	-1%	1.800
120	8.50%	10.20	3	12.0%	10%	-2%	1.800
150	9%	13.50	3.3	13.2%	10%	-3%	1.500

Using Marginal Cost to Set Interest Rates on Deposits

- **Marginal cost approach provides information on**
  - **Setting deposit interest rate**
  - **Deciding how far institution should go in expanding its deposit base before the added cost of deposit growth catches up with additional revenues and total profits begin to decline**
- **When profits start to fall: either find new sources of funding with lower marginal costs or identify new assets promising greater marginal revenue, or both**

Using Marginal Cost to Set Interest Rates on Deposits

Conditional Pricing

- Depository sets up a schedule of fees in which customer pays a low fee or no fee if the deposit balance remains above some minimum level, but faces a higher fee if average balance falls below minimum
  - Customer pays a price conditional on how they use deposit
- Deposit prices vary based on one or more of these factors:
  - Number of transactions passing through account
  - Average balance held in the account over a designated period
  - Maturity of deposits in days, weeks or month

Using Marginal Cost to Set Interest Rates on Deposits

Conditional Pricing

- Economist Constance Dunham classified checking account conditional pricing schedule into three broad category: (1)flat-rate pricing, (2)free pricing and (3) conditionally free pricing
  1. Flat-rate pricing: depositor's cost is a fixed charge per check, per time or both
  2. Free pricing: absence of a monthly account maintenance fee or per-transaction charge
  3. Conditionally free pricing: favors large denomination deposits because services are free if account balance stays above some minimal figure

Pricing Based on the Total Customer Relationship and Choosing a Depository

- Targeting the best customers for special treatment according to the number of services the customer uses
- Customers who choose two or more services may be granted lower deposit fees
- Idea: selling multiple services to customers increases the customer's dependence; makes it harder to go elsewhere
- Relationship pricing promoted greater customer loyalty and less sensitive to prices offered by competitive firms

Pricing Based on the Total Customer Relationship and Choosing a Depository

Factors customers and businesses consider when choosing institution:

In Choosing a Financial Firm to Hold Their Checking Transaction Accounts, Households Consider	In Choosing a Financial Firm to Hold Their Savings Deposits, Households Consider	In Choosing a Financial Firm to Supply Their Deposits and Other Services, Business Firms Consider
1. Convenient location. 2. Availability of many other services. 3. Safety. 4. Low fees and low minimum balance. 5. High deposit interest rates.	1. Familiarity. 2. Interest rate paid. 3. Transactional convenience (not location). 4. Location. 5. Availability of payroll deduction. 6. Fees charged.	1. Financial health of lending institution. 2. Whether bank will be a reliable source of credit in the future. 3. Quality of bank officers. 4. Whether loans are competitively priced. 5. Quality of financial advice given. 6. Whether cash management and operations services are provided.