CHAPTER – V

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INTEREST RATE RISK MANAGEMENT

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INTEREST RATE RISK MANAGEMENT

Introduction

Commercial banks under the administrative/directed policy regime of RBI until the introduction of FSR during the last decade of the bygone century had mainly focused on managing their assets to earn profits. In the recent years we have witnessed the emergence of a large number of technology supported financial institutions offering various products & services with diverse interest rates, as well as the advent of whole varieties of instruments/ market funds hastened by the process of deregulation and return to a free market. The supply and demand, in turn are influenced by monetary and fiscal policies of regulators, as well as borrowers and lenders expectations about the future course of economic activities. With the introduction of reforms in the financial sector and its integration with the world economies, the opportunities of investments at competitive/high money market rates have contributed to disinter - mediation processes as depositors withdrew their funds from banks and invested directly in marketable securities in primary & stock markets. This led financial institutions to innovate products offering different risks and returns to their customer. These financial innovations and emergence of dynamic & developed markets have helped mainly banks in retaining these funds but unfortunately in many cases the cost of these funds has become significantly higher, thereby creating funds management cost problem. These gave rise to many financial engineering techniques which helped the banks to manage Interest Rate Risk (IRR) in the deregulated environment.

Definition & Meaning:

The phase out of interest rate controls by RBI, coupled with the development of varied innovative financial instruments, mechanised processes and increased competitiveness among banks has mainly led to fluctuations in interest rates as a very common phenomenon in India. Further, in order to maintain the sound principles of safety, liquidity and profitability bank managements evolve suitable policies & systems

for controlling various risks inherent in banking business, associated with the fluctuations in interest rates to which their mix of assets & liabilities in terms of maturity (including pre-payment) are exposed.

IRR can be defined as the potential impact on bank's earnings and net asset values due to changes in interest rates. To a bank IRR arises when its principal and interest cash flows both on and off balance sheet have mismatched maturities or pricing dates. The amount of risk is a function of the magnitude and direction of interest rate changes and the size and maturity of the mismatch positions. By traditional definition[1] IRR means changes in the interest income due to changes in the rate of interest. While the focus is not misplaced it is definitely incomplete in as much as it overlooks an important aspects – changes in interest rates resulting in the value of assets and liabilities. Thus IRR may be viewed from two different but complementary perspectives – earning sensitivity to rate fluctuations and price sensitivity of instruments/products to changes in interest rate. Changes in the interest rates can affect banks with regard to changes in:

a) Market Value of assets/liabilities and off balance sheet items, ultimately impacting the value of net worth.
b) Net interest income due to mismatching in the repricing terms of the assets & liabilities.
c) Net income as a result in the changes in income.
d) Net Interest margin due to changes in interest income.
e) Net income margin owing to changes in interest income and sensitivity of non interest income to rate changes.
f) Net Margin for the changes mentioned above (b) to (e).
g) Capital – asset ratio due to changes in net margin.

Sources and Effects of Interest Rate Risk:

IRR is the exposure of a bank's financial condition to adverse movements in interest rates. Accepting this risk not by chance but by choice by banks is a normal part of banking business during these days of competitive financial environment. However, excessive IRR can pose a significant threat to a bank's earnings and capital base. Changes

in interest rates affect a bank's earnings by changing its net interest income and the level of other interest sensitive income and operating expenses. Changes in interest rates also affect the underlying value of the bank's assets, liabilities and off-balance sheet instruments because the present value of future cash flows change when interest rates change. Accordingly, an effective risk management process that maintains interest rate risk within prudent levels is essential to the safety and soundness of banks.

The primary sources/forms of IRR to which banks are typically exposed are re pricing risk, basis risk and options available. Also there are two most common perspectives for assessing and managing bank's IRR exposure viz. the earnings perspective and the economic value perspective. As the names suggest, the earnings perspective focuses on the impact of interest rate changes on a bank's near-term earnings, while the economic value perspective focuses on the value of a bank's net cash flows. Each of these are discussed as under:

Sources of Interest Rate Risk:

Repricing Risk:

As financial intermediaries, banks encounter interest rate risk in several ways. The primary and most often discussed form of interest rate risk arises from timing differences in the maturity (for fixed rate) and repricing (for floating rate) of bank assets, liabilities and off-balance-sheet (OBS) positions. While such repricing mismatches are fundamental to the business of banking, they can expose a bank's income and underlying economic value to unanticipated fluctuations as interest rates vary. For example a long term, fixed rate asset funded with a short term deposit. That is a bank that funded a long-term fixed rate loan with a short-term deposit would face a decline in both the future income arising from the position and its underlying value if interest rates increase. These declines arise because the cash flows on the loan are fixed over its lifetime, while the interest paid on the funding is variable, and increases after the short-term deposit matures.

Basis Risk:

Another important source of IRR arises due to imperfect correlation in the adjustment of the rates earned and paid on different instruments with otherwise similar repricing characteristics. When interest rates change, these differences can give rise to unexpected changes in the cash flows and earnings spread between assets, liabilities and OBS instruments of similar maturities. For example, strategy of funding a variable rate loan whose rate is based on the three month Treasury Bill rate that is funded with three months Certificate of Deposits (CDs). Here, of course, there is no repricing risk as both the instruments have a similar repricing interval. However, as past experiences suggests that deposit rates & treasury bill rates have never identically track the market rate changes therefore exposes the bank to the risk of NII. In sum, the risk that the interest rate of different assets & liabilities may change in different magnitude is called basis risk.[2]

Optionality:

An additional and increasingly important source of IRR arises from the options embedded in many bank assets, liabilities and OBS portfolios. For example provisions in agreements that allows bank borrowers to pre pay loans or allow bank depositors to prematurely withdraw deposit balances with little or no penalty. Under this, if borrowers or depositors exercise the option to prepay loans or withdraw prematurely the deposits can effect the NII to the bank. Here, if bank do not adequately manage, such asset or liability products can experience significant risk. Since the options held, are generally excercised by the holders (bank customers) alone and banks are at disadvantage end.

Effects of Interest Rate Risk:

The above sources of IRR suggests that changes in interest rates have adverse effects both on a bank's earnings and its economic value and are explained here as under.

Earnings perspective:

Under this conventional/traditional approach to IRR assessments, the focus of analysis is the impact of changes in interest rates on total accrual or reported earnings of the bank. The variation in earnings is an important focal point for IRR analysis because reduced earnings or outright losses can threaten the financial stability of a bank by undermining its capital adequacy and/or by reducing public confidence.

In this regard, the component of earnings that has received the most attention is NII (i.e. the difference between total interest income and total interest expense). This focus reflects both the importance of NII in banks' overall earnings and its direct and easily understood link to changes in interest rates. However, as banks have expanded increasingly into non- fund based activities that generate fee-based and other non-interest income, a broader focus on overall net income - incorporating both interest and non-interest income and expenses - has become more common. The non-interest income arising from many activities, such as transaction processing like issue management of clients etc. and asset securitisation programs, are highly sensitive to market interest rates. Therefore, when interest rates fall, the servicing bank also experience a decline in its fee income. This increased sensitivity has led both bank management and bank officers to take a broader view of the potential effects of changes in market interest rates on the bank earnings and to factor these broader effects into their estimated earnings under different interest rate environments.

Economic value perspective:

Variation in market interest rates also affect the economic value of a bank's assets, liabilities and OBS positions. The sensitivity of a bank's economic value to fluctuations in interest rates is an important consideration to both various bank stake holders and management alike. The economic value of a bank can therefore be viewed as the present value of bank's expected net cash flows, defined as the expected cash flows on assets minus the expected cash flows on liabilities plus the expected net cash flows on OBS

positions. In sum, the economic value perspective reflects sensitivity of the net worth of the bank to fluctuations in interest rates.

Since the economic value perspective considers the potential impact of interest rate changes on the present value of all future cash flows, it provides a more comprehensive and broader view of the potential long-term effects of changes in interest rates than is offered by the earnings perspective. This comprehensive and broader view is important since changes in near-term earnings - the typical focus of the earnings perspective - may not provide an accurate indication of the impact of interest rate movements on the bank's overall positions.

These above sources and effects of IRR on banks earnings have led to the recognition of importance of proper management of assets & liabilities portfolios simultaneously.

The Maturity Structure of Assets & Liabilities:

To put it simply banks obtain funds from term deposits, savings account and by issuing certificates of deposits etc. They lend out these funds to corporations and individuals as well as invest funds in stocks, government securities, Treasury bonds etc. The process of obtaining funds from one segment of the economy and lending funds to another segment of the economy is known as 'Intermediation'. This process is the key to asset liability management as practiced by banks and is alternatively known as "Spread Management". The maturity and interest rate relationships between the assets (The Loans & Investments) and the liabilities of the banks (the funds from depositors plus funds from other non deposit sources) determine both the profitability and or risk to the bank. Logically, when the average interest rate on the assets exceeds the average rate on the liabilities, then the 'Spread' is positive and the bank is profitable. When the cost of liabilities exceeds the return from assets, then the 'spread' is negative and losses occur. Therefore, Spread Management is the control of the assets and the liabilities to obtain a desirable rate of return on assets in relation to the risk.

Maturity Structure:

The relation between maturities of assets & liabilities have a significant effect on variability of earnings of the bank; that is, the maturity relationships is also an important factors affecting IRR.

The amount of assets in each maturity range (called rate – sensitive assets) typically does not equal the amount of rate sensitive liabilities in the same range. Thus if interest rate increases, then a maturity range where more liabilities exist than assets creates a loss when the currently existing liabilities mature and are rolled over into new liabilities at a higher cost. Therefore, assets and liabilities (both on and off balance sheet) may be classified as rate sensitive, or non- rate sensitive, depending on their maturity and how often they are repriced.

SOUND PRACTICES FOR THE MANAGEMENT OF INTEREST RATE RISK

For all purposes the IRR management involves the application of following basic elements in the management of assets, liabilities and off-balance-sheet instruments viz.: Appropriate Board and Senior Management oversight, Adequate risk management policies and procedures, Appropriate risk measurement, monitoring and control functions and Comprehensive internal controls & independent audits.

The specific manner in which a bank applies these broad elements in managing its IRR would mainly depend upon the complexity and nature of its holdings, activities and the level of IRR exposures. What constitutes adequate IRR management practices may therefore vary considerably from bank to bank .These IRR management processes require adequate internal controls that include audits and other appropriate mechanism/ techniques to ensure compliance with policies & limits set by the top management of the bank. Various IRR measurement techniques like Repricing Schedules, Gap Analysis, Simulation Approaches, Duration Analysis etc. are available. A detailed theoretical presentation of concept & complexities of each of these techniques are thought to be beyond the scope of this research study. However, various principles suggested by Basel

Committee & Practices recommended under RBI guidelines are presented in Chapter – II on Literature Survey. Further, we present a comparative study of four nationalized banks in Chapter –IX on Analysis of ALM in commercial banks using Gap Analysis method to study the impact of ALM on these bank's IRR management.

Conclusion:

While it is understood that financial intermediation is becoming riskier, it however, does not pay to assume a neutral position in managing IRR. A bank needs to maintain spreads for long-term viability. And, in this process it will be exposed to interest rate risk. However, the extent of interest exposure depends upon how risk savvy/averse it is.

References:

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