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Off-balance sheet activities in banking: Theory and Indian experience

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Introduction

Financial systems have experienced dramatic changes over the last two decades. The sharp acceleration in the pace of innovation has significantly altered the traditional face of the international financial system. These developments have been mainly due to the interaction of a combination of factors. The revolution in information technology, and an associated increase in competition, at both the national and international levels, has led to a continuing erosion of dividing lines, as the major intermediaries have been global in their geographical coverage and universal in their financial functions, encompassing banking, securities market activities and increasingly, insurance.

A structural shift in the international financial architecture can be traced to the 1970s with the breakdown of the Bretton Woods system in the 1970s and the subsequent switch to floating exchange rates. The collapse of pegged exchange rates, in particular, created a strong demand from customers of banks for the hedging of exchange rate risks on a routine basis, while the transition from a situation of low and stable inflation and interest rates to one characterized by high and variable rates increased the need for firms to hedge their potential risk exposures. The increased demand for such risk management services meant that in addition to their traditional intermediary role, banks were called upon to provide such services. For example, companies that borrowed in their domestic currency, derived income in other currencies from their foreign operations and banks could help such companies to control their foreign currency risk. Similarly, technology-intensive firms for whom unpredictable short-term revenues imposed severe constraints on their research and development (R&D) budgets, approached banks that provided products designed to hedge overseas income and plan R&D over longer period. This meant that banks had to increasingly diversify out of their traditional banking operations and provide fee-based services, implying higher incomes although at greater risks. The growth of off-balance sheet activities was a natural outgrowth of banks providing such risk management services.

Having outlined the broad contours of the genesis of off-balance sheet (OBS) activity, the rest of the study proceeds as follows. Section II examines the definitional aspects of OBS, while

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Section III explores the reasons for the growth of OBS. The various types of OBS businesses are discussed in Section IV. Section V compares traditional banking operations *vis-à-vis* OBS activity. The Indian experience is contained in Section VI, and the final section synopses the concluding remarks.

II. Meaning of OBS Activities

The 'off-balance sheet' (hereafter OBS) description denotes that the activities involve contingent commitments or contracts which generate income to a bank, but are normally not captured as assets or liabilities under conventional accounting procedure. Contingent items may be recorded in a bank's accounts as 'notes to balance sheet', 'contingent commitment banking', 'assetless banking' or even 'invisible banking'.

OBS items have been around for a long period of time. For example, dealing in bank bills lay at the heart of the British financial system in the nineteenth century. However, these instruments came to be widely used only when risks escalated sufficiently. Initially, banks were not involved in the action. Futures and options were offered mainly by organised exchange such as the Chicago Mercantile Exchange and the Chicago Board of Trade. These were standard contracts for hedging of risks associated with volatile markets. However, when corporations desired products tailored to their specific needs, they turned to banks for those products. This demand led to a wide variety of custom-tailored contracts such as loan commitments, forward contracts and swaps. A recent report by the International Swaps and Derivatives Association (ISDA) shows that the transaction volume of over-the-counter derivatives (in notional amounts outstanding) has increased rapidly since the beginning of the 1990s from a mere USD 4 trillion in 1990 to USD 35 trillion in 2001.

III. Received Literature

A number of recent studies have examined the issue of why banks engage in off-balance sheet activities. These studies primarily focus on US banks' engagement in loan sales, commitments and standby letters of credit. Several authors, for instance, have argued that securitisation enables banks to optimise the allocation of risk sharing by shifting risk from risk-averse to risk-neutral investors (the collateralisation hypothesis). Banks can do so by securitising their safest assets off-balance sheet and retaining their risky assets on balance sheet. This hypothesis predicts a positive relationship between securitisation and bank risk, because the pooling problem (of mixing safe and risky assets on balance sheet) is more acute in risky banks. Still others have contended that securitisation motivated by fixed-rate deposit insurance

encourages banks to become even more riskier (the moral hazard hypothesis). The argument is that banks have a comparative advantage in originating loans, but a disadvantage in warehousing low-risk loans. Due to the moral hazard problem, banks can increase their risk while retaining their comparative advantage in originating loans by selling relatively high-quality low-risk loans and issuing standby letters of credit. A variant of this argument has been advanced which contends that loan sales may be motivated by differences in loan and liability opportunities among financial institutions (the comparative advantage hypothesis). While certain institutions enjoy comparative advantages in loan funding and warehousing (i.e., small and foreign banks), other institutions enjoy comparative advantages in loan originating. These advantages stem from differences in regulatory taxes that banks must pay in the form of federal deposit insurance premiums, forgone interest rates from holding required reserves and mandatory capital requirements that exceed those that would be maintained in the absence of regulation (the regulatory tax hypothesis).

In contrast to the above, several other commentators have avered that off-balance sheet securitisation may occur in larger quantities for safer banks or induce riskier banks to become safer. Their argument is that standbys and commitments are uninsured contingent claims whose value increases with the safety of the issuing bank. This provides an incentive for banks that issue these claims to increase their safety and it also offers relatively safer banks a comparative advantage in issuing these claims (the market discipline hypothesis). For instance, it has been observed that the advent of disintermediation-type securitisation (e.g., loan sales without recourse) due to changes in technology of monitoring is independent of bank risk and liquidity. They have argued that this type of securitisation might change the size of the banking sector but not the economic role of banks as holding risky, illiquid, information-problematic loans (the monitoring technology hypothesis).

A number of studies have tested the empirical implications of the competing hypotheses. Several authors attempted to explain why banks sell loans by estimating a Tobit model to determine the amount of loans that a bank will sell annually. The analysis reveals that a bank's comparative advantage in originating and servicing loans had a larger impact on a bank's probability of selling loans than regulation did, and it had the largest impact in determining the amount of loans that a bank will sell. Other authors employed a reduced form logit model to test the empirical predictions of their theoretical model that (i) banks are more likely to engage in standby letters of credit arrangements that safer banks and (ii) securitised loans are generally safer than the loans in the same bank's asset portfolio. The analysis provides empirical support for both hypotheses. Certain commentators examined the relationship between bank risk and standbys

issuances. The findings revealed that standbys were positively related to risk for small banks, but negatively related to risk for large banks. Others found empirical support for the market discipline hypothesis in US commercial banks issuance of OBS instruments.

Perhaps the most comprehensive piece of evidence is for US banking examined the relationship between several types of securitisation and numerous measures of risk and liquidity using over 4,00,000 quarterly observations over the period 1983-91. Empirical support was found for the monitoring technology hypothesis: growth in disintermediation-type securitisation is independent of bank risk and liquidity. More recent work used a logistic model to examine the diffusion of five off-balance sheet financial innovations (standby letters of credit, loan sales, swaps, options and futures and forwards) and assess the impact of regulatory changes on the growth of these instruments. Their analysis suggested that changes in capital regulation had no consistent effect on the adoption of these off-balance sheet products.

IV. Types of OBS Business

Most discussion of OBS activities have focused on those formal and informal arrangements that generate contingent claims against the bank, and thereby give rise to potential balance sheet or portfolio risk. These are listed in the left-hand column of Appendix 1. If the description refers to those activities that generate income without passing across the banking institution's balance sheet, then a much broader range of activities can be incorporated. These are listed on the right-hand column of Appendix 1.

Many of the latter activities are an extension of existing customer –bank relationships and enable banks to realize 'economies of scope' (cost complementarities in multi-product firms) from conventional business. Branch facilities and capital equipment are multi-purpose and can be put to work for other transactions. Automated clearing houses set-up for inter-bank settlement can be opened up to others enabling corporate customers to deliver instructions on magnetic tape for the direct crediting of payments. Computing facilities can be used for establishing up of cash management systems for customers. Banks develop skills in portfolio management which can be put to use in advising customers and selecting their investments.

V. Comparison with Traditional Banking Operations

Banks specialize in obtaining and using information about credit risks. They acquire proprietary information because firms can thereby avoid having to make business information available through market releases. As providers of transaction services, banks have access to sources of information which enable them to select better loans and monitor their performance at

lower cost than would otherwise be the case. These information services are provided when lenders hold claims against financial intermediaries, and delegate to them decisions about the allocation of savings to various ends.

Banks are able to offer these assurances to customers in part because informational advantages enable them to select assets which have low individual default risks and in part because their portfolio size enables maturities of assets to be staggered to match anticipated deposit withdrawals. They also offer a risk pooling service, exploiting the regularities which emerge when large numbers of withdrawal options and loan default are combined. Some of the pooling takes place within the banking institution, as in the case in retail banking. With wholesale banking, most of the pooling occurs across institutions, with loan risks spread by participations and liquidity needs shared out among the group of banks which make use of the inter-bank funding markets. By straddling the retail and wholesale sectors of the market, banks perform a size intermediation function and tailor-made financial packages to customer needs.

Off-balance sheet activities are also vehicles of information and risk-sharing services. They seek to unbundle the risks inherent in underlying assets and make it possible to repackage such decomposed risks into synthetic products and deal in the separately. The establishment of a credit line earns a bank a commitment fee, affords the customer protection against liquidity needs, but exposes the bank to offsetting liquidity risk which it is better able to bear. Banks also protect customers against, and themselves incur, asset risk through activities such as bill acceptances and standby letters of credit. In both cases, banks essentially guarantee payment of a customer's liability to a holder of its debt, should the customer default. Fees charged to a customer reflect the benefit of the lower interest rate by the market on the customer's paper, once a bank guarantee payment is attached. Although the initial incidence of a fee is on the bank's customer (the borrower), the ultimate effect of the lower yield is equivalent to the holder of risky (higher yielding) paper paying a premium to the bank, in terms of foregone interest, for protection against default. This is analogous to a depositor accepting a guarantee from a bank in lieu of unguaranteed interest income on primary securities.

From the borrowers point of view, the interest rate risk they face can be averted by writing a cap or collar contracts with the bank. A cap is a put option which acts as a hedge to the buyer against rising interest rates. A floor, on the other hand, is a series of call options and when combined with a cap in a collar acts much like a fixed rate of interest. When borrowers negotiate a syndicated loan, they normally are allowed to choose the interest rate basis (LIBOR, CD/CP rate), the currency of interest and principal and when to draw down the loan. These choices can be exercised also off-balance sheet by means of basis swaps, coupon swaps, currency swaps (for

altering interest rates), back-up credit lines (for liquidity needs) and futures or forward contracts (to alter effective draw down or maturity dates).

From this comparison, it is clear that much the same functions are being performed in off-balance sheet banking as in traditional banking, and moreover, for reasons which are essentially the same as those explaining traditional intermediation by banks. Guarantees exploit opportunities arising from information asymmetries, where the bank has access to information about a borrower's 'real' credit risk and the risk premium which would otherwise be required by the market for certain borrowers is greater than the fees charged to them by banks (and other financial guarantee insurers). Access to the inter-bank market means that banks may also be better able to bear liquidity risk. Any interest rate risk under a revolving credit can also be ameliorated in various ways, including shifting risk onto futures market.

Clearly, banks possess skills in acquiring information and can tap wholesale funding markets which enable them to issue guarantees and write commitments of various kinds. One reason for doing so is that such activities enable banks to achieve dramatic increases in leverage—as measured by conventional balance sheet quantities. More importantly, contingent claims, dovetailed to meet customer requirements, not only help to strengthen customer relationship, but is also a major source of fee income. There are two popularly cited advantages of OBS banking. First, since OBS banking does not involve deposit funding, cash-asset reserves are not needed, and the implicit tax of reserve requirements is avoided. This enables them to pass on the cost savings to customers in terms of lower 'spreads' which come from routing deposit and loan business off-balance sheet. Second, in the past, banks were not required to maintain capital against OBS contingencies, although they are now required to do so under the guidelines adopted with the Bank for International Settlements (BIS) Accord.²

VI. The Indian Experience

In the pre-liberalisation era, market risk (and interest rate risk, in particular) were not much of a concern for the banking sector since the high Statutory Liquidity Ratio (SLR) meant that banks investment in Government paper ensured them a steady stream of (interest) income. Taken together with the ceiling on borrowing in call money market and the regulated interest rate regime, this provided the balance sheets of banks with sufficient liquidity. At the same time, the

² Under the BIS Accord, the value of the off-balance sheet item is converted to an on-balance sheet credit exposure equivalent by multiplying it by a conversion factor. The conversion factor depends on the risk of the activity involved and is 100 in case of financial guarantee, 50 in case of performance guarantee and 20 in case of letters of credit. The on-balance sheet equivalent is multiplied by the corresponding risk weight and added to the bank's total risk-weighted assets.

prescription to keep foreign exchange positions square at the end of the day insulated banks from the dangers arising out of liquidity or margin mismatches on account of volatile rates.

The era of administered regime having given way to one of deregulation, integration and increased competition has meant that while the banking sector has become increasingly susceptible to the vicissitudes of the global operating environment, on the one hand, heightened competition from newer market participants has put pressure on their spreads, on the other hand. The dichotomy in the structure of deposit liabilities and loan portfolios in which the liabilities are fixed *vis-à-vis* the floating rate character of the loan portfolio has exposed their balance sheet to interest rate risks. Secondly, with growing integration of forex markets with Rupee ones, and with banks being allowed to create liabilities and assets in multi-currencies, foreign exchange risks have also come to the fore. Thirdly, with the freedom given to banks to investment in bonds, shares and debentures of corporates, equity price risk has also become an area of prime concern. Alongside, with their spreads coming under stress, banks have increasingly made forays into newer domain of operations in order to augment their fee income and as a consequence, OBS business has gained in prominence.

From the policy angle, the Reserve Bank has imparted flexibility to asset-liability managers by introducing Forward Rate Agreements (FRAs) and Interest Rate Swaps (IRS) as risk mitigation strategies. Following the recommendations of the L.C.Gupta Committee, the Government has amended the Securities Contract Regulation Act, 1956 and recognized derivatives as securities. The amended definition is broad and covers securitisation instruments also. Introduction of Derivatives Act in November 1999 is likely to develop the market for Stock Index Futures. In June 2000, both the Mumbai Stock Exchange and the National Stock Exchange have introduced Stock Index Futures. Effective March 1, 2000, the Government has lifted the ban on forward rate contracts and cleared the way for forward contracts in debt securities. This is the basis for index based futures in debt market.

OBS activity by banks in India picked up only in the mid-nineties. A recent study on the determinants of OBS activity for India observed that higher levels of capital and liquid assets lowered the incentive of banks to engage in OBS activities. However, the study considered only a limited time span, which, in a sense, limited its empirical appeal. Available data for the last few years reveal that foreign banks have generally been dominant in terms of their OBS activity, followed by new private banks and nationalised banks (Table 1).

Table 1: Off-Balance Sheet Activities of Bank Groups

(Amount in Rs. billion)

Bank Group/ Year	1996-97	1997-98	1996-97	1997-98	1996-97	1997-98
	Forward Exchange Contract		Guarantees given		Acceptances, Endorsements etc.	
SBI Group	177	376	158	168	185	168
Nationalised Banks	509	715	213	233	216	220
Old Pvt.Sec Banks	63	139	19	20	14	16
New Pvt. Sec Banks	84	231	1907	3149	3404	3081
Foreign Banks	1260	2137	115	130	118	125
Scheduled Commercial Banks	2093	3598	524	583	568	560
	Forward Exchange Contract		Guarantees given		Acceptances, Endorsements etc.	
Bank Group/Year	2001-02	2002-03	2001-02	2002-03	2001-02	2002-03
SBI Group	703	792	177	179	386	448
Nationalised Banks	1389	1850	304	356	333	438
Old Pvt.Sec Banks	174	217	33	38	36	46
New Pvt. Sec Banks	486	727	145	156	239	777
Foreign Banks	3579	4222	183	173	698	1222
Scheduled Commercial Banks	6331	7807	843	903	1691	2931

Source: Report on Trend and Progress of Banking in India (various years).

The table reveals that total OBS of scheduled commercial banks (SCBs), excluding RRBs, witnessed a significant growth over the period under study. For example, total OBS of SCBs increased at a compound rate of 48 per cent over the period under study, propelled primarily by a rise in forward exchange contract. Over the entire period, forward exchange contract have been the most dominant, comprising over 70 per cent of the OBS of SCBs. The bulk of the increase in OBS activity has been accounted for by foreign banks which comprise nearly three-fourths of the OBS activity of the commercial banking system. The Indian market is becoming increasingly active in the area of interest rate swaps and forward rate agreements. However, the market is dominated primarily by the foreign banks and some new private banks. The participation of the public sector banks in this market tend to be quite low *vis-à-vis* their foreign/new private counterparts.

Another important OBS activity that has gained prominence in recent years is securitised deals. The earliest securitisation in India dates back to 1991 when a foreign bank securitised auto loans and placed a paper with GIC Mutual Fund. According to recent estimates, 35 per cent of all securitisation deals between 1992 and 1998 were related to hire purchase receivables of truck and the rest towards other auto/transport segment receivables. The recent securitisation deal by Larsen and Toubro has opened a new vista for financing power projects. National Housing Bank has also

been making efforts to structure the pilot issue of mortgage-backed securities within the existing legal, fiscal and regulatory framework.

A major bottleneck in the development of the derivatives market is the absence of a reliable structure of benchmark interest rates, for different maturities. With a view to fill this gap, National Stock Exchange decided to experiment with the idea of ascertaining the expectations of major market participants in arriving at indicative benchmark rates. Based on a daily poll of over 25 market participants, NSE started disseminating since 1998 its overnight money market rates called NSE Mumbai Inter-bank Bid and Offer (MIBOR/MIBID) rates. These rates have since gained wide acceptance in the market. Subsequently, the Report of the Working Group on Rupee Derivatives recommended, *inter alia*, introduction of exchange-traded derivatives to supplement the OTC derivatives. It recommended four types of contracts for trading: (a) short-term MIBOR futures contract, (b) MIFOR futures contract based on 6-month LIBOR and Rupee-Dollar 6-month forward rate, (c) bond futures contract and (d) long-term bond index futures contract.

In this context, the Clearing Corporation of India (CCIL), promoted by major banks, financial institutions and primary dealers, represents a major market infrastructure to significantly improve market efficiency and integrity. In essence, CCIL attempts to address the long-felt need for a sound institutional structure to support and facilitate clearing and settlement of trades across various financial markets.

For participants in the forex market, CCIL's intermediation would provide a structure to mitigate, and manage, the risks associated with the settlement of these high-value transactions. Since the foreign currency leg has necessarily to be settled overseas while the rupee leg gets settled locally, time-zone differences come into the picture, adding to the settlement risk. Besides bringing tangible benefits in the form of improved efficiency and easier reconciliation of accounts with their correspondent banks, CCIL's intermediation in the settlement process brings the benefit of lower cost to the participating banks.

The BIS, in a report on OTC derivatives settlement procedures and counterparty risk management had concluded that the creation of a clearing house has the potential to mitigate to mitigate the different risks associated with OTC derivatives. It can also reduce systemic risk, if the clearing house itself manages these risks effectively. CCIL is working on the regulatory designs and processes for settlement of OTC derivatives. CCIL is also awaiting regulatory approval for settling cash and tom transaction in the forex segment and for settlement of cross currency transactions through the CLS

VII. Concluding Remarks

The growth in financial innovation, reflected in the growing OBS activities of banks, is considered one of the most significant developments over the past two decades. Through the increased use of OBS items, there has been a notable shift towards capital market instruments. These instruments can broadly be divided into three groups, euro markets (eurodollars, eurobonds, floating rate notes), contingent banking instruments (standby letters of credit and commitments) and derivatives (swaps, forwards, futures and options). In addition to these, securitisation has also been reflected in the increased marketability of banks' traditional assets, mainly loans through loan sales and loan sales without recourse. Not surprisingly, while demand-side factors have been instrumental, supply-side factors (technology, regulation, competition and globalisation) have not lagged behind. In spite of its growing popularity the world over, it is only recently that OBS activities have gained credence in the Indian context. Recent initiatives by the Government and the Reserve Bank are expected further streamline OBS activities in India.

Appendix 1: Summary of Off-Balance Sheet Activities

Contingent Claims	Financial Services
(1)	(2)
Loan Commitments	Loan-Related Services
Overdraft Facilities	Loan Origination
Credit Lines	Loan Servicing
Back up Lines for Commercial Paper	Loan Pass-through
Standby Lines of Credit	Asset Sales with Recourse
Revolving Lines of Credit	Sales of Loan Participation
Reciprocal Deposit Arrangements	Agent for Syndicated Loans
Repurchase Agreements	
Note Issuance Facilities	Trust and Advisory Services
	Portfolio Management
Guarantees	Investment Advisory Services
Acceptances	Arranging Mergers and Acquisitions
Asset Sales with Recourse	Tax and Financial Planning
Standby Letters of Credit	Trust and Estate Management
Commercial Letters of Credit	Trusteeship for Unit Trust, Pension Plans and Debentures
	Safekeeping of Securities
Warranties and Indemnities	Offshore Financial Services
Endorsements	
Financial Support to Affiliates/ Subsidiaries	Brokerage/Agency Services
	Share/Bond/Mutual Fund Brokerage
Swap and Hedging Transactions	Insurance (life and General) Brokering
Forward Foreign Exchange Market	Real Estate Agency
Currency Swaps	Travel Agency
Currency Futures	
Currency Options	
Cross-Currency Swaps	Payment Services

Interest Rate Swaps	Data processing
Cross-Currency Interest Rate Swaps	Network Arrangements
Interest Rate Options	Clearing House Services
Interest Rate Caps, Floors and Collars	Credit/Debit Cards/Home Banking
	Cash Management Systems
Investment Banking Activities	
Securities Underwriting	Export/Import Services
Securities Dealership/Distribution	Correspondent Banking Services
Gold and Commodities Trading	Trade Advice
Market-Making in Securities	Export Insurance Services
	Counter-trade Exchange

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