State Bank of Pakistan

Banking Surveillance Department

Quarterly Performance Review of the Banking System

SEPTEMBER 2008

The Team

Team Leader

Lubna Farooq Malik Lubna.farooq@sbp.org.pk

Team Members

Muhammad Javaid Ismail javaid.ismail@sbp.org.pk

Amer Hassan amer.hassan@sbp.org.pk

Rizwana Rifat rizwana.rifat@sbp.org.pk

Abdul Samad abdul.samad@sbp.org.pk

Muhammad Shamil Akbar muhammad.shamil@sbp.org.pk

Imran Malik imran.malik@sbp.org.pk

Farrukh Bashir farrukh.bashirsatti@sbp.org.pk

Data Assistance

Muhammad Amjad m.amjad@sbp.org.pk

Table of Contents

List of Abbreviations

CAR	Capital Adequacy Ratio
CB	Commercial Bank
CDR	Credit to Deposit Ratio
CRR	Cash Reserve Requirement
CY	Calendar Year
FB	Foreign Bank
HTM	Held-to-Maturity
IB	Islamic Bank
IBB	Islamic Bank Branch
IBI	Islamic Banking Institution
LPB	Local Private Bank
MCR	Minimum Capital Requirement
MTB	Market Treasury Bill
NII	Net Interest Income
NOP	Net Open Position
NPF	Non Performing Finance
NPL	Non Performing Loan
NSS	National Saving Scheme
OMO	Open Market Operation
PIB	Pakistan Investment Bond
PSCB	Public Sector Commercial Bank
ROA	Return on Asset
ROE	Return on Equity
RSA	Rate Sensitive Asset
RSL	Rate Sensitive Liability
RWA	Risk Weighted Asset
SBP	State Bank of Pakistan
SB	Specialized Bank
SLR	Statutory Liquidity Requirement
SME	Small and Medium Enterprise

Glossary

Capital Adequacy Ratio is the amount of risk-based capital as a percent of risk-weighted assets.

Consumer Financing means any financing allowed to individuals for meeting their personal, family or household needs. The facilities categorized as Consumer Financing include credit cards, auto loans, housing finance, consumer durables and personal loans.

Corporate means and includes public limited companies and such entities, which do not come under the definition of SME.

Credit risk arises from the potential that a borrower or counter-party will fail to perform an obligation or repay a loan.

Discount rate is the rate at which SBP provides three-day repo facility to banks, acting as the lender of last resort.

Duration (Macaulay's Duration) is a time weighted present value measure of the cash flow of a loan or security that takes into account the amount and timing of all promised interest and principal payments associated with that loan or security. It shows how the price of a bond is likely to react to different interest rate environments. A bond's price is a function of its coupon, maturity and yield.

GAP is the term commonly used to describe the rupee volume of the interest-rate sensitive assets versus interest-rate sensitive liabilities mismatch for a specific time frame; often expressed as a percentage of total assets.

Gross income is the net interest income (before provisions) plus non-interest income; the income available to cover the operating expenses.

Interbank rates are the two-way quotes namely bid and offer rates quoted in interbank market are called as interbank rates.

Interest rate risk is the exposure of an institution's financial condition to adverse movement in interest rates, whether domestic or worldwide. The primary source of interest rate risk is difference in timing of the re-pricing of bank's assets, liabilities and off-balance sheet instruments.

Intermediation cost is the administrative expenses divided by the average deposits and borrowings.

Liquid assets are the assets that are easily and cheaply turned into cash – notably cash and short-term securities. It includes cash and balances with banks, call money lending, lending under repo and investment in government securities.

Liquidity risk is the risk that the bank will be unable to accommodate decreases in liabilities or to fund increases in assets. The liquidity represents the bank's ability to efficiently and economically accommodate decreases in deposits and to fund increases in loan demand without negatively affecting its earnings.

Market risk is the risk that changes in the market rates and prices will impair an obligor's ability to perform under the contract negotiated between the parties. Market risk reflects the degree to which changes in interest rates, foreign exchange rates, and equity prices can adversely affect the earnings of a bank.

Net interest income is the total interest income less total interest expense. This residual amount represents most of the income available to cover expenses other than the interest expense.

Net Interest Margin (NIM) is the net interest income as a percent of average earning assets.

Net loans are the loans net of provision held for NPLs.

Net Non-Performing Loans (NPLs) is the value of non-performing loans minus provision for loan losses.

Net NPLs to net loans means net NPLs as a percent of net loans. It shows the degree of loans infection after making adjustment for the provision held.

Non-Performing Loans (NPLs) are loans and advances whose mark-up/interest or principal is overdue by 90 days or more from the due date.

NPLs to loans ratio/Infection ratio stands for NPLs as a percent of gross loans.

Paid-up capital is the equity amount actually paid by the shareholders to a company for acquiring its shares.

Rate Sensitive Assets (RSA) are assets susceptible to interest rate movements; that will be re-priced or will have a new interest rate associated with them over the forthcoming planning period.

Repricing risk arises from timing differences in the maturity of fixed rate and the repricing of floating rates as applied to banks' assets, liabilities and off-balance sheet positions

Return on assets measures the operating performance of an institution. It is the widely used indicator of earning and is calculated as net profit as percentage of average assets.

Return on equity is a measure that indicates the earning power of equity and is calculated as net income available for common stockholders to average equity

Risk weighted Assets: Total risk weighted assets of a bank would comprise two broad categories: credit risk-weighted assets and market risk-weighted assets. Credit risk weighted assets are calculated from the adjusted value of funded risk assets i.e. on balance sheet

assets and non-funded risk exposures i.e. off-balance sheet item. On the other hand for market risk-weighted assets, first the capital charge for market risk is calculated and then on the basis of this charge amount the value of Market Risk Weighted Assets is derived.

Secondary market is a market in which securities are traded following the time of their original issue.

SME means an entity, ideally not a public limited company, which does not employ more than 250 persons (if it is manufacturing/ service concern) and 50 persons (if it is trading concern) and also fulfils the following criteria of either 'a' and 'c' or 'b' and 'c' as relevant:

(a) A trading / service concern with total assets at cost excluding land and building upto Rs50 million.

(b) A manufacturing concern with total assets at cost excluding land and building upto Rs100 million.

(c) Any concern (trading, service or manufacturing) with net sales not exceeding Rs300 million as per latest financial statements.

Tier I capital: The risk based capital system divides capital into two tiers- core capital (Tier I) and supplementary capital (Tier II and Tier III). Tier 1 capital includes fully paid up capital, balance in share premium account, reserve for issue of bonus shares, general reserves as disclosed on the balance-sheet and un-appropriated /un-remitted profit (net of accumulated losses, if any).

Tier II capital or Supplementary Capital (Tier II & III) is limited to 100 percent of core capital (Tier I). Tier II includes; general provisions or general reserves for loan losses, revaluation reserves, exchange translation reserves, undisclosed reserves and subordinated debt.

Tier III capital consists of short-term subordinated debt and is solely held for the purpose of meeting a proportion of the capital requirements for market risks.

Yield risk is the risk that arises out of the changes in interest rates on a bond or security when calculated as that rate of interest, which, if applied uniformly to future time periods sets the discounted value of future bond coupon and principal payments equal to the current market price of the bond.

Yield curve risk materializes when unanticipated shifts have an adverse effect on the bank's income or underlying economic value.

This page is left blank intentionally

Quarterly Performance Review of the Banking System
September 2008

1. Overview

The banking system started to show the sign of slowdown. During the quarter under review total assets of the banking system slightly declined as the deposits base contracted. However, the latest interim post-quarter statistics on key financials indicate that unlike established trends of strong growth, the asset base of the banking system is likely remain stable during the last quarter of the outgoing year. Nonetheless, on the back of high inflation rates, which push the real lending rates into negatives, the demand for bank credit continued to increase and the banks' asset profile further shifted from investments to loans and advances, thus constraining the banks' liquidity profile. In the face of deteriorating macro economic factors, the performance of the banking system on asset quality and earnings slightly declined. However, key financial soundness indicators and results of the Stress Testing exercise suggest that the system by and large maintained its satisfactory performance as well as the resilience towards the major risk factors.

While the asset base of the banking system slightly reduced by 0.1 percent to Rs5,509 billion, deposits base witnessed even more pronounced contraction of 3.0 percent. This withdrawal of deposits was largely made up by increase in inter bank borrowings. However, on the asset side, loans of the banking system posted a strong increase of Rs167 billion (5.7 percent) while investment portfolio further shrank by Rs94 billion. Resultantly, the liquidity profile of the banking system came under further pressure as the ADR (advances to deposit ratio) and liquid asset ratio further deteriorated and posed the serious challenge of asset-liability management especially for the banks operating with high ADR. This situation was further compounded by a tight monetary policy that was in vogue, though later on relaxed during post quarter liquidity stress. Nevertheless, mainly due to availability of sufficient market-based liquidity, banks effectively managed their asset-liability

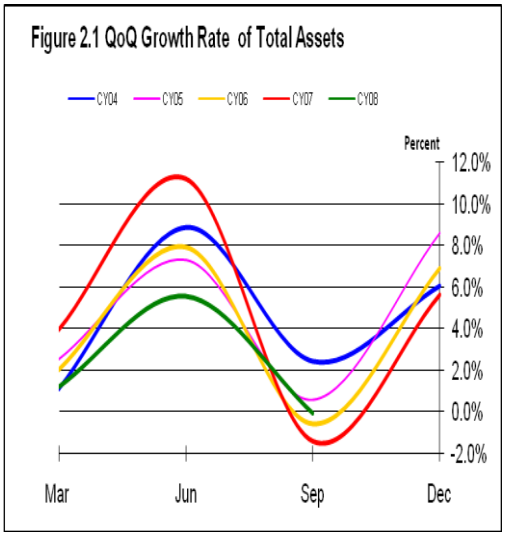
profiles while continuing to finance the crucial economic activities.

Due to the increase in lending portfolio and the resultant shift in asset mix from less riskier investments in Govt. papers to loans and advances, risk weighted assets (RWA) of the banking system registered significant increase. Resultantly, the risk based capital adequacy ratio (CAR) of the banking system under Basel-II framework deteriorated by 30 bps to 11.8 percent which though still remained well above the minimum standard of 8.0 percent. The composition of the risk based regulatory capital, however, improved as the share of Core capital increased whereas the supplementary capital, mainly due to write down in revaluation surpluses, decreased. Accordingly, the Core capital to RWA ratio remained intact at the last quarter's level of 9.7 percent.

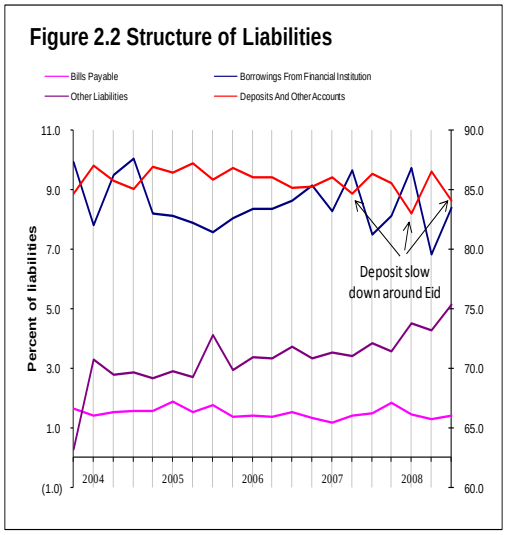
In the back drop of strong increase in loans and advances and building pressures in the economy, the infected loan portfolio registered an over the quarter increase of Rs36 billion and infection ratio (gross) increased to 8.4 percent (7.7 percent in Jun-08). Since this increase in NPLs was mainly observed in substandard and doubtful categories that require only partial provision coverage, the additional provision covered only a part of the fresh NPLs. Therefore, net infection ratio and NPL coverage ratio slightly deteriorated to 1.9 percent and 79 percent, respectively, which though still remain within acceptable and ameliorated level compared with the situation that was prevailing in corresponding quarter of the last years. The strong earnings capacity of the banking system enabled the banks to provide these additional charges without making any noticeable dent on the bottom line. The year to date earnings though remained well above the satisfactory levels, the additional loan loss charges and proportionally higher increase in operating expense brought the key earnings indicators under slight pressure. The pre-tax ROA declined to 2.0 percent (2.3 percent in Jun-08 and 2.2 percent in CY07). Incidentally, this slight fall in overall earning of the banking system has also to do with the exceptional losses posted by a couple of banks.

Though the key financial indicators for the quarter under review indicate slight drop, by and large the banking system has maintained the momentum of satisfactory performance that it achieved during the recent years of strong economic growth. The indicators suggest that the system is well placed to maintain this momentum and is financially sound to withstand any plausible shocks in the key risk factors. Nevertheless, gradual increase in NPLs in the backdrop of emerging vulnerabilities in the macroeconomic indicators and constrained liquidity profile due to passive growth in deposits and strong increase in lending portfolio pose significant challenge to banks. The post quarter liquidity crunch, in particular, has signified the importance of prudent asset-liability management for the banks in tight monetary policy regime. SBP took a number of measures including the provision of adequate liquidity support, introduction of mandatory ADR for infusing the prudence in asset-liability profile of banks, and enhancement of MCR and its linkage to underlying risk profile of the banks. These measures are expected to facilitate the sound operations of the banking system and incentivize the banks to rationalize their asset-liability profile and further improve their risk management capacities.

2. Asset and Funding Structure



The asset base of the banking system marginally contracted during the quarter under review. This decline was in line with established seasonal pattern whereby the asset base of the banking system generally witnesses slack growth or slight contraction in its asset base (see Figure 2.1).Over the quarter decline of Rs4 billion (0.1 percent) in total asset that took place in sharp contrast to strong increase of Rs292 billion in Jun-08 and Rs67 billion in Mar-08 quarter also reflects some slow down in the banking sector, which has witnessed strong growth rates for the last few years. However, interestingly, the decline in assets in the September quarter is less than decline observed in the corresponding quarters of the previous two years.

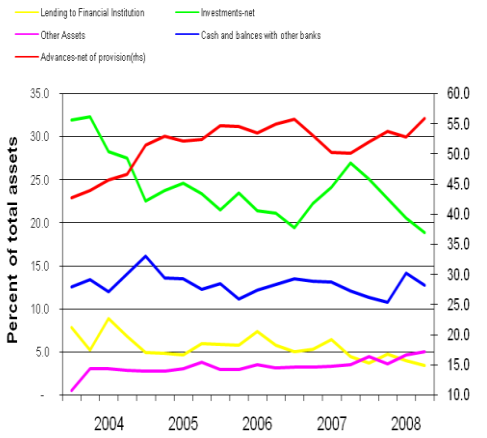


Incidentally, the post quarter developments on the liquidity front seem to have raised serious challenge for the banks in maintaining the traditional pattern of growth in the last quarter of the calendar year. Heavy deposits withdrawal around Eid season has been a routine phenomenon (see Figure 2.2). However, delinquency of deposits in retracting to the banking system and further deposit withdrawal amid ill-founded rumor mongering as a sequel of credit crisis witnessed in the global markets constrained the liquidity profile of the banking system. SBP took timely measures aimed at stemming the liquidity problem and to avert resulting threats to the stability of the banking system. These measures succeeded in facilitating extension of bank credit for financing the acceleration in economic activities in last quarter. However, banking system might post an overall negative assets growth in last quarter of the outgoing year as a result of the slow down.

Somewhat similar pattern was seen in CY07. During CY07, in response to slackness in the demand for bank credit in the face of slowdown in economic activities and tightening of monetary regime, banks started to reposition their asset profile and lending strategy. The asset mix of the banking system gradually shifted from lending to investments during the first three quarters of CY07. This trend however reversed in the last quarter of CY07 high inflations rates turned the real interest

rates into negatives boosting demand for bank credit. The share of loans and advances in banks' asset base again started to inch up. While some pick up in advances is expected in last quarter of CY08, contraction in investment side may keep the overall asset base still lower than last year.

Figure 2.3 Structure of Total Assets



The Sep-08 quarter witnessed a significant increase in advances that grew by Rs167 billion and their share in total assets inched up to 56.1 percent, exceeding Dec-06 levels. This increase in advances primarily emerged from the increased demand from Corporate Sector while SME, Consumer, and Commodity Operations reduced their borrowings from the banking system. In the last week of Jun-08, SBP raised the CRR and SLR requirements for banks resulting in a significant increase in cash and treasury bank balances by the end of Jun-08 quarter. During the quarter under review, banks responded to this development by increasing the share of fixed deposits, thus reducing their mandatory cash balances by taking the advantage of zero CRR on long term deposits. The investments continued to decline in both absolute rupee terms and as proportion of total assets (see Figure 2.3).

On the funding side, a slight decline in asset base due to a significant drop of Rs124 billion in deposit base. As the share of deposits in overall asset base declined reliance on borrowing for financing the portfolio of earning asset increased during the quarter.

The shareholders' equity increased by 6 percent over the quarter, however due to contraction of revaluation surpluses the net assets (net worth) as percentage of total assets stayed at last quarter's level of 10.2 percent (10.4 percent in Mar-08).

The group-wise composition of total assets shows that LPBs remained the leading group; since the inception of the outgoing year, these banks increased their market share by 1.6 percentage points to 75.7 percent. PSCBs that showed slight improvement during the latter half of the CY07 witnessed significant reduction in their asset base. These banks in fact contributed towards the decline in total assets of the banking system as the two leading banks of the group witnessed 6 to 7

Figure 2.4 Total Assets of Banking System

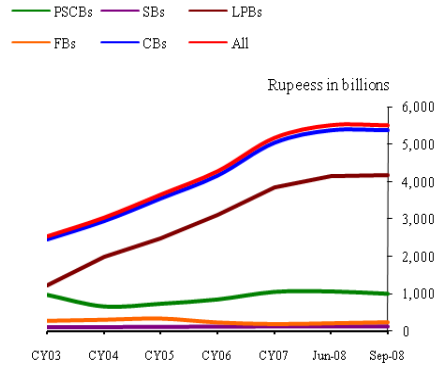


Figure 2.5 Assets of the Banking System

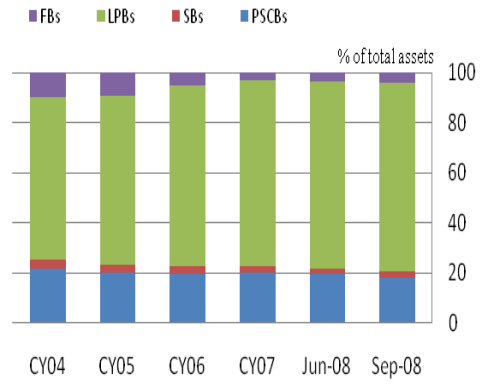
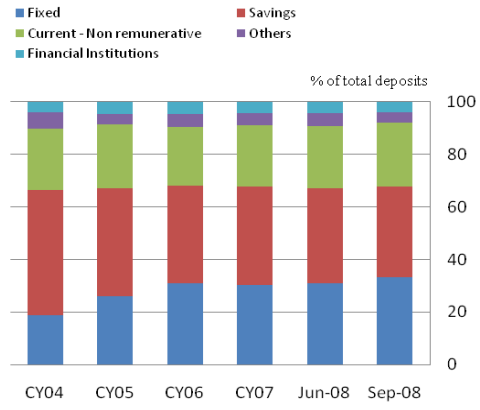


Figure 2.6 Composition of Deposits



percent decline in their asset base. Accordingly, the group shed its share to 17.9 percent. However, FBs whose market share was witnessing a persistent decline due to the mergers and reorganization of the group banks into LPBs, registered slight growth in their market share. While most of the group banks increased their asset base during the quarter, the entry of a new foreign bank also substantially contributed towards the increase in the market share of FBs (see Figure 2.4 & 2.5).

The banking system of the country has a high concentration as a fewer number of banks hold a major share of the system's total assets and deposits. The five large banks hold more than one-half of the total assets. This concentration has been following an overall declining trend as the medium sized banks are gradually building up their market share. During the quarter under review the market share of five large banks further receded by 50 bps to 51.3 percent. Annex-II shows the structure of the market on key financials.

Deposits finance the largest portion of banks' asset base. The deposit component witnessed a significant decline of Rs124 billion (3.0 percent) during the quarter. Accordingly, the share of deposits in overall funding structure declined to 73.8 percent from 76 percent in last quarter. Year-on-Year basis deposits posted a growth of 10.1 percent that also fell short of 25.6 percent growth in advances over the same period. Incidentally, foreign remittances that are one of the leading factors behind the recent years' strong growth in deposits increased by 25 percent over the corresponding quarter of the last year.

A disaggregated analysis of the deposits in terms of composition shows that share of fixed deposits inched up significantly while the share of saving accounts receded. Saving deposits still constitute the major share of deposits closely followed by fixed deposits and non-remunerative current accounts. The industry has been witnessing a gradual shift in deposits from savings to term deposits for quite some time. This phenomenon was largely ensued by SBP's policy to encourage the banks to mobilize longer terms deposit for financing their longer terms assets to reduce the maturity mismatches and liquidity risk. Accordingly,

fixed deposits have gained a significant share of savings deposits since 2004. The results of the last few quarters however were signifying that this trend of gradual shift had stabilized to some extent. However, SBP's policy drive to increase the CRR and SLR in last week of Jun-08 seems to have significantly invigorated this trend (see Figure 2.6). Though in the post quarter liquidity crunch, SBP has reduced the CRR, the policy initiative of exempting term deposits of one year and above maturity also from statutory liquidity requirements is likely to continue to encourage this trend.

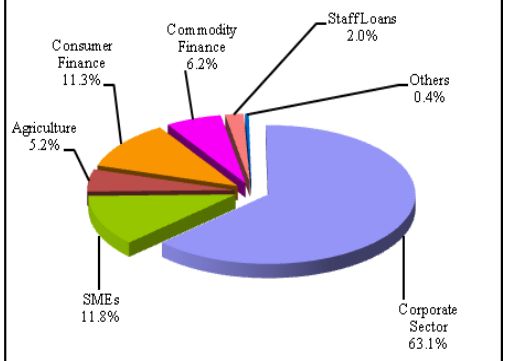
The currency wise composition of deposits shows a shift towards foreign currency deposits which rose to 15.5 percent of total deposits from 13.7 percent in Mar-08 and 12.3 percent in CY07. This shift in deposits mix in itself mainly emanates from the significant devaluation in Pak rupee over the recent quarters, resulting in higher amounts of rupee equivalent amount of foreign currency deposits when converted at devalued exchange rates.

Due to significant decline in deposits, the banking system had to resort to ***borrowings*** for financing the portfolio of earning assets. Banks' borrowings increased by Rs76 billion during the quarter. Accordingly, the share of borrowings in overall funding structure increased by 1.4 percentage points to 8.9 percent. The increase was witnessed in both secured and unsecured borrowings. Though increase in secured borrowing was more in absolute terms, relatively higher increase in unsecured borrowings increased their share in total borrowings inched up to 22.8 percent (19.5 percent in Jun-08).

The ***capital*** is the second largest source of funding for the banking system, contributing 10.2 percent of the system's overall funding structure. Shareholders' equity grew by 6 percent over the quarter. This growth was also dampened by significant year-to-date losses posted by a couple of banks. Nevertheless, on the back of fresh injection of equity and strong overall earnings, the shareholders equity showed a Year-on-Year growth of 18.8 percent and stands at Rs509 billion (Rs429 billion in Sep-07). This increase in capital base was largely influenced by SBP's MCR policy, which have encouraged not only the retention of higher portion

of earnings but also the fresh injection of equity for meeting the enhanced MCR. During the quarter under review, a general rise in interest rates and slow down in stock market resulted in a significant mark down in the value of both fixed-income and equity securities of banks. Accordingly, the overall revaluation surpluses of the system eroded by Rs28 billion (35 percent) to Rs52 billion. Therefore, the share of net assets (shareholders equity plus revaluation surpluses) in total assets stayed at the last quarter's level i.e. 10.2 percent.

Figure 2.7 Loans by Type of Borrowers



Advances of the banking system largely maintained their growth momentum that was picked up in the last quarter of CY07. Advances in fact showed a lackluster demand during the first three quarters of the last year. This trend reversed in the last quarter of CY07 as high inflations rates turned the real interest rates into negative and the demand for bank credit again enlivened. This liveliness in demand for bank credit subsisted during the first three quarters of the outgoing year. During the quarter under review, advances (net) grew by Rs167 billion (5.7 percent) - Rs112 billion in Jun-08 and Rs116 billion in Mar-08.

Detailed composition of the advances[1] shows that mainly the corporate increased their usage of bank credit. There was a slight increase in advances to agriculture sector while three other major sectors viz. SME, Consumer and Commodity Finance retired their borrowings from banks. Both SME and Consumer sectors has been reducing their bank borrowings since the inception of the outgoing year. During the quarter under review, the corporate sector, the largest user of banks credit, borrowed additional advances of Rs195 billion which made for the reductions of Rs32 billion in lending to SME sector, Rs9 billion in lending to Consumers and Rs22 billion in Commodity Finance. Accordingly, corporate sector further inched up its share in overall advances of the banking system. SME and consumer sector that are the second and third largest users of bank credit, respectively, have shed their share in the overall advances of the system (see Figure 2.7). There was only a slight shift in the end use of advances. Fixed Investment

Table 2.1 End-use of Advances (net)

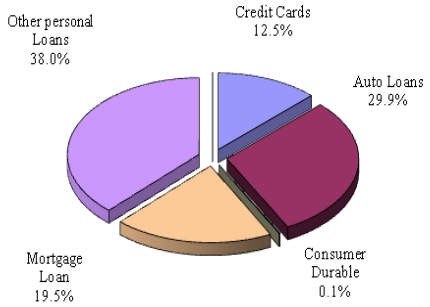
Amount in billion Rs, share in percent

	Dec-07		Jun-08		Sep-08	
	Amount	Share	Amount	Share	Amount	Share
Fixed Investment:	**609.2**	**22.6**	**663.9**	**22.8**	**727.1**	**23.8**
Corporate Sector	549.0	20.3	617.3	21.2	682.6	22.4
SMEs	60.3	2.2	46.6	1.6	44.5	1.5
Trade Finance:	**415.9**	**15.4**	**443.5**	**15.2**	**459.0**	**15.0**
Corporate Sector	348.0	12.9	394.9	13.5	411.7	13.5
SMEs	67.9	2.5	48.6	1.7	47.3	1.5
Working Capital:*	**1,231.6**	**45.6**	**1,382.4**	**47.4**	**1,448.5**	**47.4**
Corporate Sector	623.2	23.1	719.1	24.7	832.1	27.3
SMEs	309.1	11.4	298.4	10.2	269.8	8.8
Agriculture	150.8	5.6	154.2	5.3	157.7	5.2
Commodity Financing	148.4	5.5	210.8	7.2	188.8	6.2
Consumer Finance:	**371.4**	**13.8**	**353.8**	**12.1**	**344.6**	**11.3**
Credit Cards	46.8	1.7	44.0	1.5	43.1	1.4
Auto Loans	111.4	4.1	103.9	3.6	102.9	3.4
Consumer Durable	1.1	0.0	0.5	0.0	0.4	0.0
Mortgage Loan	67.4	2.5	66.9	2.3	67.2	2.2
Other personal Loans	144.7	5.4	138.6	4.8	130.9	4.3
Staff Loans:	**52.2**	**1.9**	**57.5**	**2.0**	**61.6**	**2.0**
Housing Finance	36.8	1.4	40.7	1.4	44.1	1.4
Others	15.4	0.6	16.7	0.6	17.5	0.6
Others	**20.6**	**0.8**	**15.3**	**0.5**	**12.6**	**0.4**
Total	**2,700.9**	**100.0**	**2,916.5**	**100.0**	**3,053.4**	**100.0**

* agriculture and commodity finance are added in this category for analysis in this section only

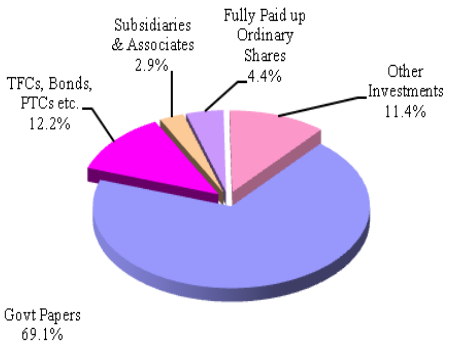
[1] The following analysis of composition of advances and shift therein is based on the banks' domestic operations only.

Figure 2.8 Composition of Consumer Loans (Domestic Operations)



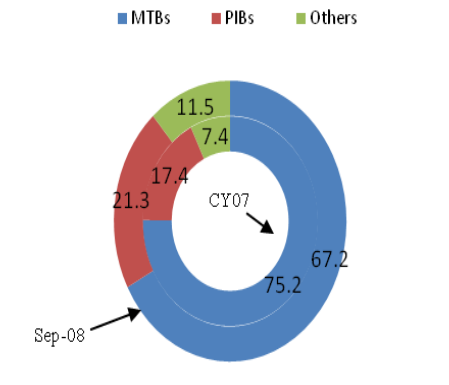
registered a 1 percentage point increase in its share, while Trade Finance showed a minor reduction. The **consumer finance**, which had been showing a consistent increase up till end of CY07, witnessed persistent decline since then and its share in overall advances receded to 11.3 percent (see Table 2.1). The breakup of consumer finance data shows that all consumer finance categories except Mortgage Loans witnessed decline during the quarter; however, the decline was significant in Personal Loans category which declined by 5.5 percent. Nonetheless, the internal composition of the consumer finance did not witness any significant shift, with Personal Loans contributing the largest share of consumer finance followed by Auto and Mortgage Loans (see Figure 2.8).

Figure 2.9 Break up of Investments



Investments, the second largest component of the banks' asset base, have been following a declining trend since the last quarter of CY07. During the quarter under review, banks' investments portfolio (net) further contracted by Rs95 billion (8.4 percent) and its share in total assets of the banking system declined to 18.7 percent (20.4 percent in Jun-08 and 22.8 percent in Mar-08). A disaggregated analysis shows that overall decline was largely caused by decrease in investment in govt. papers which declined by Rs72 billion during the quarter, while investments in Subsidiaries & Associates and Equity investments also registered decline of Rs3.9 billion and Rs2.7 billion, respectively. Though the second largest component of investment portfolio i.e. TFCs, Bonds & PTCs grew by Rs4.7 billion, overall internal composition of investment portfolio remained highly dominated by govt. papers which still constitute 69.1 percent of banks' total investments (see Figure 2.9). The detailed analysis of govt. papers shows that though both of the major categories of federal govt. securities have declined in percentage as well as absolute terms during the outgoing year, the most significant decline was observed in MTBs. Resultantly, the share of MTBs vis-à-vis PIBs and other government papers has significantly receded over the last three quarters (see Figure 2.10).

Figure 2.10 Break up of Federal Securites



3. Financial Soundness of the Banking System

3.1 Solvency[2]

Figure 3.1.1 Risk-Based Capital Position

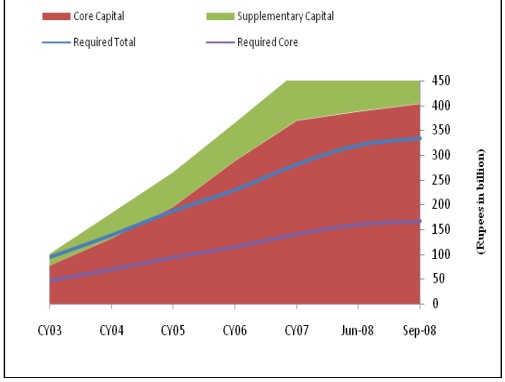


Figure 3.1.2 Capital Structure and Capital Adequacy

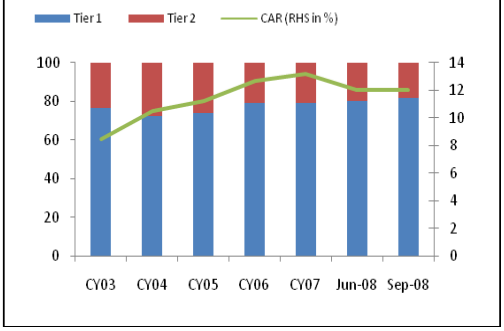


Table-3.1.1: Capital Adequacy Indicators

	Basel-I					Basel-II*	
Percent	CY03	CY04	CY05	CY06	CY07	Jun-08	Sep-08
CAR							
PSCBs	11.0	13.4	14.5	15.2	17.4	15.5	15.1
LPBs	9.0	10.1	10.6	12.7	12.8	11.6	11.2
FBs	23.0	17.4	16.4	15.0	13.5	14.0	18.5
CBs	11.1	11.4	11.9	13.3	13.8	12.4	12.2
SBs	(28.2)	(9.0)	(7.7)	(8.3)	(7.8)	(0.7)	(4.1)
All banks	8.5	10.5	11.3	12.7	13.2	12.1	11.8
Tier 1 Capital to RWA							
PSCBs	8.2	8.6	8.8	11.1	13.0	11.9	11.9
LPBs	7.0	7.5	8.3	10.4	10.5	9.5	9.3
FBs	23.0	17.1	16.1	14.3	12.9	13.4	18.0
CBs	9.1	8.6	9.1	10.7	11.1	10.1	10.1
SBs	(28.7)	(15.0)	(13.6)	(13.3)	(13.5)	(7.8)	(9.1)
All banks	6.5	7.6	8.3	10.0	10.5	9.7	9.7
Capital to Total Assets							
PSCBs	6.1	8.7	12.6	12.2	13.7	12.8	12.9
LPBs	5.3	6.5	7.0	9.2	10.2	9.8	9.8
FBs	9.9	8.9	9.5	10.1	11.2	10.5	13.3
CBs	6.1	7.2	8.4	9.9	10.9	10.4	10.5
SBs	(10.0)	(9.4)	(8.1)	(8.0)	(5.5)	0.4	(4.1)
All banks	5.5	6.7	7.9	9.4	10.5	10.2	10.2

** The CAR calculation for One PSCB and two SBs are based on Basel-I reporting formats, all other banks have reported on Basle II. These three banks hold 0.6 percent of the banking systems assets*

Solvency position of the banking system remained firm during the quarter under review. The qualifying risk based capital of the banking system increased to Rs 492 billion in Sep-08 quarter up from Rs 484 billion in Jun-08 and Rs438 billion in the corresponding period of Sep-07. The core capital being the mainstay of banks' capital rose by 4 percent whereas the supplementary capital declined by 7.8 percent during the quarter under review (see Figure 3.1.1). As a result, the share of Core capital in total capital inched up to 82 percent from 80.1 percent in Jun-08. The ratio of core capital to total capital improved significantly since CY03 when the same was around 76.7 percent of total capital. (see Figure 3.1.2).

Total Risk Weighted Assets (RWA) of the banking system increased by 4.2 percent to Rs4181 billion in Sep-08 from Rs4015 billion. The increase in RWA came about due to extraordinary increase in advances which increased by 5.7 percent during the quarter under review. In view of relatively higher increase in RWA, the CAR of the banking industry declined by 0.3 percentage points to 11.8 (see Table 3.1.1). However, the Core Capital to RWAs ratio stood firm at the previous quarter's level of 9.7 percent. Both the ratios exceeded the generally acceptable benchmarks for well-capitalized banks. As of Sep-08 Risk Weighted Assets to total Assets stood at 75.7 percent against 72.8 percent in Jun-08 (see Figure 3.1.3).

The trend analysis of CAR shows that it achieved the peak of 13.2 percent in CY07, while it was 12.7 percent in 2006. These are the years which saw execution of some of the largest Merger and Acquisition transactions in the banking sector, increasing capital and improving the solvency indicators of the banking system to extraordinary levels. Further, effective Jan-08 banks have been maintaining CAR under Basel-II framework,

[2] *The above discussion is based on the CAR calculations on Basel-II framework. Except for one PSCB and two SBs which are reporting on Basel-I reporting formats, all other banks have reported on Basle II. These three banks hold 0.6 percent of the banking systems assets*

Figure 3.1.3 RWA to Total Assets

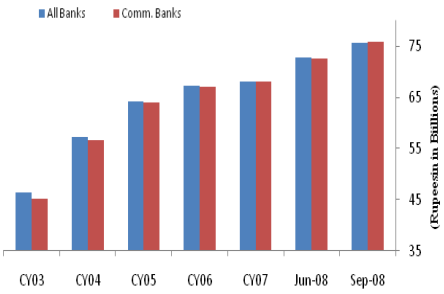


Table-3.1.2: Distribution of Banks by CAR

	Total	Below 8%	8 to 10 %	10 to 15 %	Over 15 %
CY03	40	4	10	5	21
CY04	38	1	13	9	15
CY05	39	2	7	13	17
CY06	39	3	4	15	17
CY07	39	3	6	12	18
Jun-08	39	2	9	9	19
Sep-09	40	4	9	7	20

Figure 3.1.4 Banks' Market Share by CAR

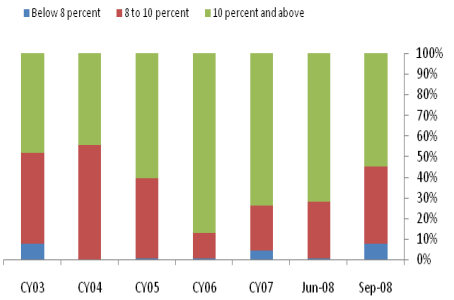
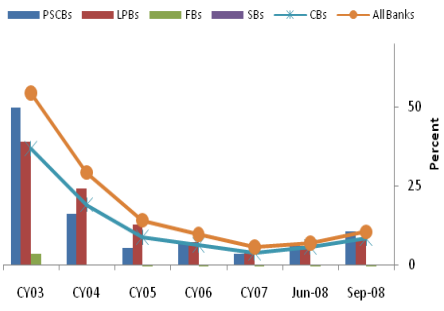


Figure 3.1.5 Net NPLs to Capital Ratio (in %)



requiring additional capital charge. Given the above developments and the high seasonal demand for credit during September quarter, the existing CAR of 11.8 percent can be considered at quite a stable level. As banks are required to meet their Minimum Capital Requirements (MCR) of Rs5 billion as well as minimum CAR of 9 percent by end CY08, the overall CAR is expected to keep the existing level.

CAR of all the groups witnessed slight decline except for the FBs which managed to increase their CAR by 4.5 percentage point to 18.5. The Core Capital to RWAs of FBs too registered increase of 4.6 percentage point whereas that of SBs declined by 1.3 percentage point. The capital adequacy of the FBs has been on the downward trajectory due to continuous decline in number of foreign banks. However, all the solvency indicators of the foreign banks improved substantially due to establishment of a new foreign bank during the Sept-08 quarter.

The disaggregated analysis shows that 27 banks have CAR of more than 10 percent (see Table 3.1.2). Of the remaining, 9 banks have their CAR above 8 percent. The market share of banks having CAR of 10 percent and above stood at 54.6 percent in Sep-08 whereas 92 percent of the banking system assets rest with the banks having CAR of 8 percent and above (see Figure 3.1.4).

As regards the compliance with minimum capital requirement, 34 out of 40 banks are satisfactorily meeting the prevailing requirement, including 4 foreign banks, which are required to keep Rs2 billion. Out of the remaining, 4 banks are under process of restructuring/ privatization.

Capital impairment ratio, i.e. net NPLs to Capital ratio increased by 3.5 percentage points to 10.4 percent in Sep-08 hence signifying risk to banks' solvency emanating from the increase NPLs (see Figure 3.1.5).

The solvency position of the banking system has so far remained firm, which may be challenged by the deteriorating asset quality. SBP as a part of its proactive approach has already raised minimum CAR for the year 2008 to 9 percent, which will strengthen the solvency of the system. This, coupled with increase in MCR to Rs9 billion, will facilitate in maintaining the capital level as also

provides additional buffer for coping with any stress from deterioration in asset quality.

3.2 Profitability

The profitability of the banking system remained steady during the quarter though return indicators slightly declined due to higher provisioning and operating expenses. The positive earnings can be traced to increase in interest income following a surge in lending.

The banking system posted a before tax profit of Rs21 billion during the quarter, translating into year to-date profit of Rs82 billion whereas after tax profit stood at Rs55 billion in Sep-08

Group-wise, LPBs, contributed most of the increase in profitability (90 percent) of the system, while PSBs contributed rest of the increase. Both SBs and FBs posted losses during the quarter, which decreased their year to date profit. In addition to increase in non mark-up expenses and provisions, first quarter loss posted by a newly established foreign bank has also increased the overall losses of the FBs.

The profitability in terms of total assets saw a marginal decrease over the quarter. The return on assets (ROA) has declined by 0.3 percentage point to 1.4 percent due to significant rise in provisions and higher operating expenses. Similarly return on equity (ROE) declined by 3.4 percentage points to 13.3 percent during the quarter (see Figure 3.2.1 & 3.2.2).

The detailed analysis of the commercial banks' profit and loss composition shows that during the quarter under review, the income composition of CBs remained the same. The share of net interest income in the gross income stood at 69.8 percent, whereas the non-interest income was at 30.2 percent.

The income composition has witnessed gradual shift since CY03; the share of net interest income has increased from 58.9 percent to 69.8 percent while share of non interest income declined from 41.1 percent to 30.2 percent. Further analysis of the non-interest income indicates that the fee based and currency dealing income has marginally declined during the quarter, whereas, the share of other non-interest incomes, comprising of trading gains and dividend income, increased to 10.4 percent from 10.0 percent in Jun-08. On overall

Table-3.2.1 Profitability of Banking System

(Billion Rs)	CY03	CY04	CY05	CY06	CY07	Jun-08	Sep-08
Profit before tax							
PSCBs	16.1	14.2	22.8	31.5	33.2	9.8	11.7
LPBs	23.8	31.0	60.5	85.6	69.7	47.0	66.9
FBs	7.1	7.2	11.6	6.3	2.5	2.1	1.7
CBs	47.0	52.4	94.9	123.5	105.4	59.0	80.3
SBs	(3.3)	(0.4)	(1.1)	0.1	1.7	2.4	1.8
All Banks	43.7	52.0	93.8	123.6	107.1	61.4	82.1
Profit after tax							
PSCBs	9.4	8.0	15.5	21.2	23.9	6.1	8.9
LPBs	14.8	21.8	41.1	59.1	47.4	36.5	44.5
FBs	4.2	5.8	8.0	4.3	1.2	1.0	0.4
CBs	28.4	35.6	64.6	84.6	72.4	43.6	53.8
SBs	(3.7)	(0.9)	(1.3)	(0.5)	0.9	2.4	1.1
All Banks	24.7	34.7	63.3	84.1	73.3	45.9	54.9

Figure 3.2.1 Profitability of Commercial Banks

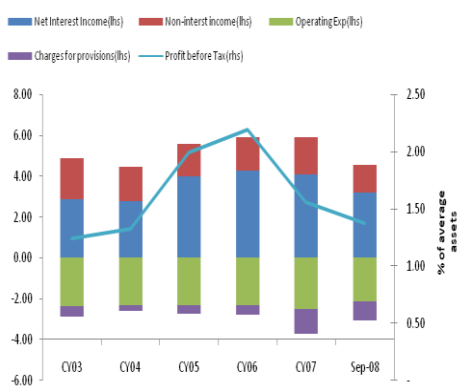


Figure 3.2.2 ROE After Tax

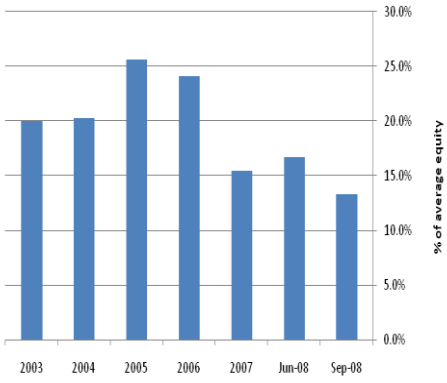


Figure 3.2.3 CBs' P&L Structure

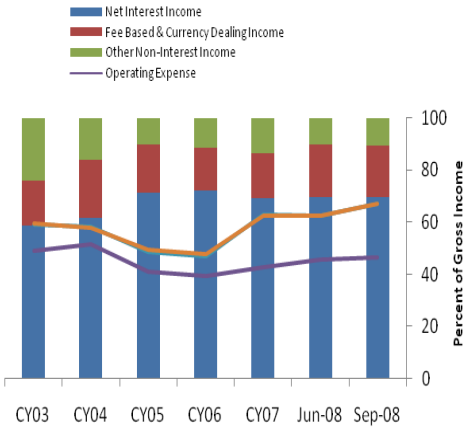


Figure 3.2.4 Operating Exp. to Gross Income

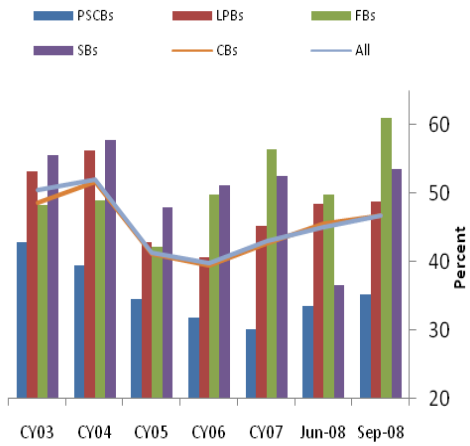
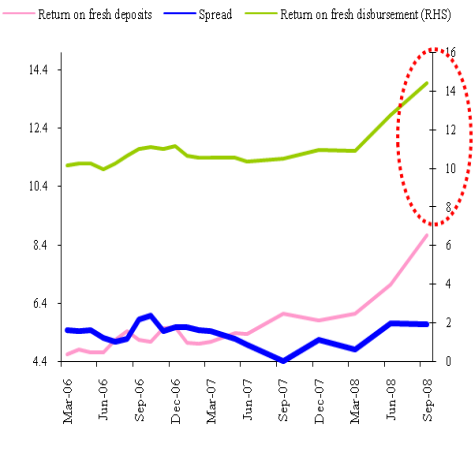


Figure 3.2.5 Weighted Average Rates for Fresh Disbursements and Fresh Deposits (in %)



basis, all expenses as a percentage of gross income increased by 4.6 percentage points to 67.1 percent during the quarter under review (see Figure 3.2.3) which has affected the overall profitability of the system.

Group wise breakdown of the expenses shows that operating expenses as percent of gross income increased by 1.66 percentage points in Sep-08. In absolute terms operating expenses increased by Rs43 billion in Sep-08 compared to Rs38 billion in Jun-08. The ratio for all the banks witnessed increase during the quarter. The ratio for LPBs increased by 0.29 percentage point whereas that of PSCBs, FBs and SBs increased by 1.4, 11.3 and 16 percentage point, respectively (see Figure 3.2.4).

The analysis of core income reveals that CBs' net mark up/interest income has shown improvement over the year. It increased by 55.2 percent to Rs170 billion in the Sep-08 as against the previous quarter increase of 98 percent. This deceleration has occurred despite the fact that the advances growth during September quarter is highest among the three quarters of the year. It is mainly attributable to decrease in spread on fresh disbursements and deposits; the spread declined by 0.03 percentage point to 5.69 percent over Jun-08. (see Figure 3.2.5). The higher return on deposits and consequent increase in interest expenses is partially due to increase in deposit rates subsequent to introduction of 5 percent floor on all saving deposits by SBP and partially due to higher rate being offered by banks to attract deposits in face of increasing NSS rates.

The assets distribution on the basis of ROA shows that 19 banks having ROA of one percent represent 78.5 percent market share in Sep-08 (see Table 3.2.2). As ROA of the banking system has declined, the number of banks with ROA below 1.0 percent increased to 21 from 16 in Jun-08. Some of the banks in this category have recently undergone change of management or are in the process of restructuring whereas one bank is in its initial year of operations.

The banking sector in Pakistan has been maintaining their profitability trend though it slowed down to some extent during this quarter.

Table-3.2.2 %age Breakdown of Banking System's Total Assets (TA) by ROA

	CY05		CY06		CY07		Jun-08		Sep-08	
ROA	No. of Banks	% Share in TA	No. of Banks	% Share in TA	No. of Banks	% Share in TA	No. of Banks	% Share in TA	No. of Banks	% Share in TA
O and below	7	3.5	6	2.1	10	8.5	9	2.8	12	11.0
0 to 0.5	4	2.8	3	1.8	2	2.4	4	8.2	6	9.0
0.5 to 1	2	7	6	9.9	4	1.9	3	2.9	3	1.5
1.0 to 1.5	5	4	5	9.6	10	34.9	5	11.6	5	14.1
1.5 and Over	21	82.7	19	76.6	13	52.3	18	74.6	14	64.4

Increasing interest and non-interest expenses and higher provision charges are impacting the profitability of the system. Further, the ensuing economic slowdown in global economy as well as domestic economic scenario threatens to impact the profitability of the banking sector. The banks need adjustments in their business strategies and re-profiling of their assets to contain riskiness as well as ensure constant returns for the banking system.

4. Risk Assessment of the Banking System

4.1 Credit Risk

Figure 4.1.1 NPLs of Banking System

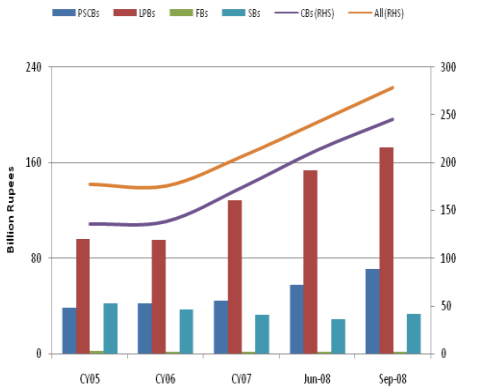


Figure 4.1.2 Category-wise Breakup of NPLs

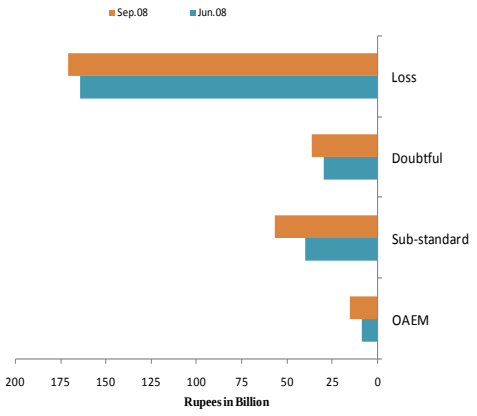
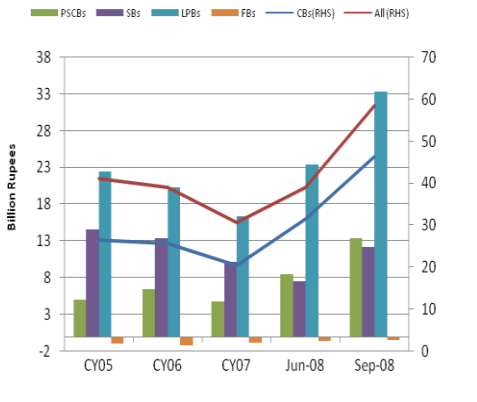


Figure 4.1.3 Net NPLs of Banking System



The loan portfolio of the banking system witnessed a significant growth as the advances (net) of the system increased by Rs167 billion which translates into year to date increase of Rs400 billion; almost 150 percent of the full year growth for CY07.

The credit risk has somewhat increased since the previous quarter. The Non Performing Loans (NPLs) of the system increased by Rs36 billion over the quarter (see Figure 4.1.1). The increase in NPLs has been across all the banking groups except for foreign banks. Half of the increase in NPLs has been contributed by the PSCBs and SBs while remaining has been contributed by LPBs. It would be pertinent to highlight that over last couple of years, LPBs being the largest banking group in terms of asset, have added to the NPLs. However, during the quarter under review recognition of huge NPLs by one of the PSCBs has led to extraordinary increase in NPLs of banking sector in general and PSCBs in specific.

The analysis of NPLs by loan classification categories show that NPLs increased in all the categories. In absolute terms, significant increase took place in OAEM and sub-standard categories, which raises concern about future growth of NPLs. A major portion of the NPLs still reside in loss category which represents 61 percent of the total NPLs (see Figure 4.1.2).

Increase of fresh loans has its toll on Net NPLs (NPLs less provisions) and other asset quality indicators. As fresh loans require no or lesser provisions, net NPLs of the system witnessed over the quarter increase of Rs19 The net NPLs of Rs58 billion are, almost at the level of the net NPLs in the corresponding quarter of the previous year. The net NPLs, after declining over the last seven years, registered their first increase in Jun-07 quarter, which continued into Sep-07 quarter. However, due to strengthening of the provisioning requirements effective Dec-07, the net NPLs decreased. With the weakening of macroeconomic factors in CY08, NPLs continues to increase over

Figure 4.1.4 NPLs to Loans (Gross)

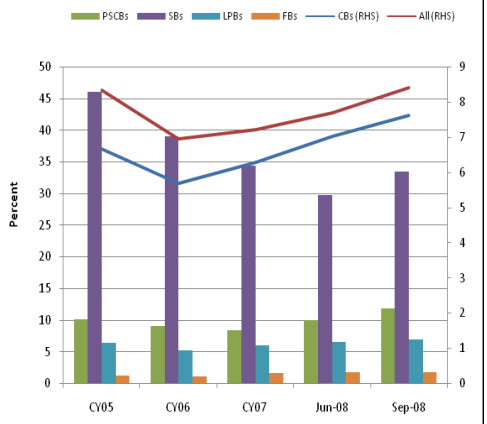


Figure 4.1.5 NPLs to Loans (Net)

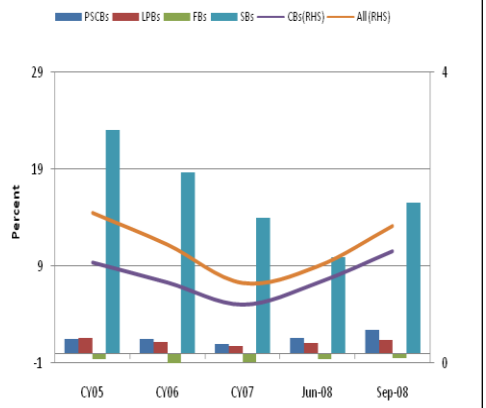
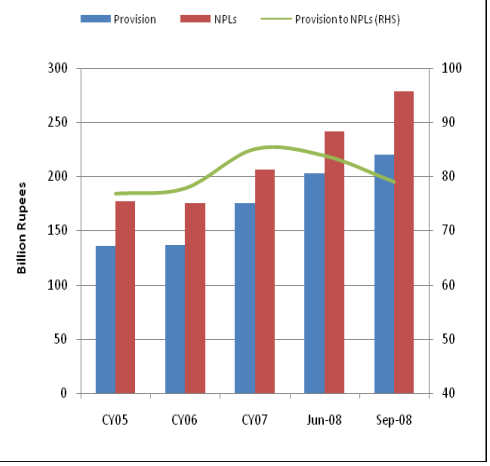


Figure 4.1.6 Provision against NPLs



the last nine months, leading to reversal of decreasing trend in net NPLs (see Figure 4.1.3).

The rise in NPLs during the quarter stressed the assets quality ratios, which were somewhat stabilized by the healthy increase in advances. The NPLs to Loans ratio (gross), for all banks, has increased by 0.7 percent to 8.4 percent in Sep-08 quarter; importantly, the CBs experienced slightly lesser increase of 0.6 percent to 7.6 percent (see Figure 4.1.4).

The NPLs to loans ratio (net) also slightly increased to 1.9 percent in Sep-08 from 1.3 percent in Mar-08, after remaining at the same level in Jun-08 (see Figure 4.1.5). When compared with the corresponding quarter of the last year, the ratio is well below the level of NPLs to loan (net) ratio of 2.3 percent in Sep-07 quarter. Though the ratio increased across all the groups, it is more significant in case of SBs (see Figure 4.1.5).

The provisions against NPLs witnessed increase of Rs17 billion. This increase in provisions was largely offsets by the more than increase in NPLs; as a result the NPL coverage ratio declined to 79 percent (see Figure 4.1.6). Increase in NPLs in the uncovered categories is the main reason behind this decrease.

In line with the other asset quality indicators, capital impairment ratio (Net NPLs to capital) of the system also increased to 10.4 percent in Sep-08 from 6.9 percent in Jun-08. It is important to highlight that other than increase in capital resulting from mergers and acquisitions, increase in capital usually happens during December and March quarters. As a result, the capital impairment ratio usually improves during these quarters while it tends to increase in the remaining two quarters. This is substantiated by the fact the ratio increased to 11.4 percent in corresponding quarter of CY07.

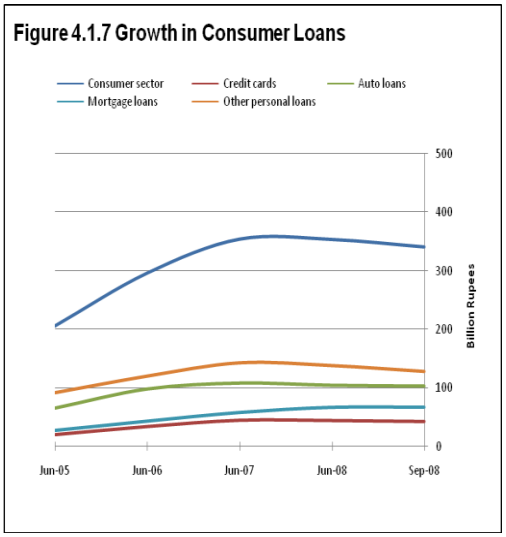
Segment-wise analysis of the domestic loan portfolio shows that increase in overall portfolio mostly came from increase in Corporate that represent 63.11 percent of the loan portfolio.

Disaggregated analysis of NPLs highlights increase in the infection ratio of Agriculture, SME and consumer finance. As a result, the NPLs to loan ratio deteriorated not only on overall basis but also

Table: 4.1.1 Segmentwise Infection of Loans Portfolio

(Domestic Operations) Sector	All Banks (in %)		Share in total laons(%)
	Jun-08	Sep-08	Sep-08
Corporate	8.0	7.6	63.11
SMEs	10.1	14.9	11.88
Agriculture	16.6	18.9	5.19
Consumers	5.7	6.5	11.21
Credit Cards	4.7	5.2	1.39
Auto Loans	5.9	5.4	3.37
Consumer Durables	21.9	24.6	0.01
Mortgage Loans	6.1	8.0	2.20
Others	5.5	6.8	4.22
Commodity Finance	0.8	1.1	6.20
Staff Loans	1.0	1.0	2.01
Others	5.9	5.9	0.41
Total	7.8	8.4	100.00

Figure 4.1.7 Growth in Consumer Loans



for most of the segments except corporate sector. As most of the increase in loan portfolio came from corporate sector, NPLs to loan ratio of the corporate sector declines by 0.4 percent to 7.6 percent in Sep-08.

The consumer finance continues to lose its weight in the overall portfolio while the NPLs continue to increase. Increasing lending rates, restrained lending by the banks to streamline their risk management practices, use of borrowers credit profile from E-CIB and limited repayment capacity due to high inflation are some of the reasons for slowdown in consumer credit (see Table 4.1.1).

In conclusion, advances of the system continues to grow at a swift pace. However, the overall assets quality of the banking system has started deteriorating during the quarter. Aggressive loan growth during the past few years as well as emerging vulnerabilities in the macro-economic environment viz. slowdown in economic activities, rising interest rates, and high inflation has contributed to this trend. Though a clearer picture will emerge with the availability of the year-end results of the system it is imperative that banks take strong measures to mitigate credit risk in their portfolios and position themselves for a more challenging next year. The pressure arising due to rising NPL necessitates strict adherence to provisioning requirements so that transparency is not compromised. Efforts for timely recoveries are to be heightened and internal controls to be installed to ensure better credit risk management.

4.2 Market Risk

Figure 4.2.1 Shift in Yield Curve

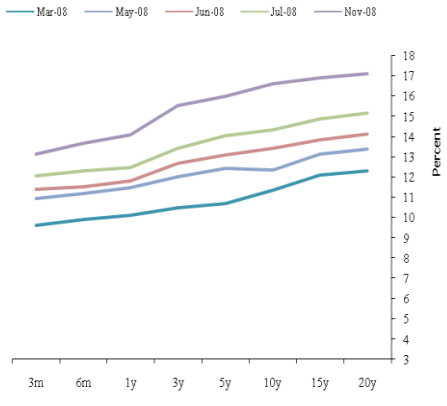


Figure 4.2.2 3m & 10y PKRV Rates

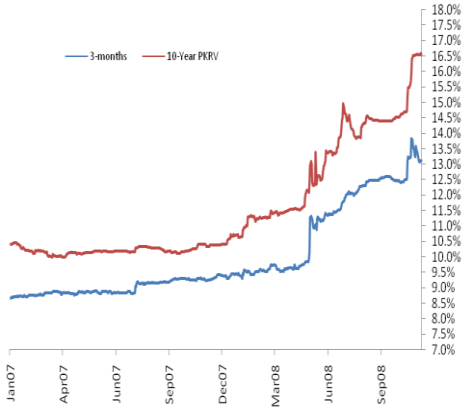
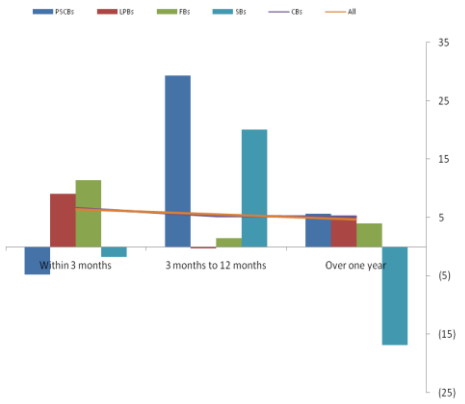


Figure 4.2.3 GAP between Rate Sensitive Assets and Laibilities to Total Assets (in %)



The Market risk profile of the banking system is predominantly affected by the interest rate risk.

In Sep-08 quarter, interest rates along the yield curve continued to show an upward shift following increase in the policy rate. Post quarter increase in discount rate by 200 bps[3] saw further upward shift in yield curve (see Figure 4.2.1). However the shift is not uniform along different maturities. The yield curve held its position for medium and long term maturities. The yield curve actually turned somewhat humped indicating inflationary expectations in the medium term. The lesser increase in short term rates has it basis in decrease in CRR by 400 bps in Oct-08 which put a resistance in increase in the overnight and the short term rates.

The rising interest rates also reflect in the overall movement of yield spread between 3 months and 10 year PKRV interest rates (see Figure 4.2.2).

The changing interest rates scenario poses additional challenge for the banks as they have majority of their investments in the Government securities. The PIB and MTB holdings which increased up to CY07 had declined during the first nine months of the current year. With the rising interest rates, the classification of Government securities is also undergoing shift; banks have doubled their holding in Held-for-Trading (HFT), while the Available-for-Sale (AFS) category has seen a decrease of over 5 percent. Actually, higher credit demand and slow down in deposit growth had its toll on holdings of AFS and HFT securities[4] as they jointly declined by 3.6 percent during the first nine month of the current year. Though decrease in holding in these categories to some extent diminished the revaluation losses, however, the pace of changing scenario continues to pose the revaluation risk. Post quarter, SBP also allowed the Government securities in Held-to-Maturity (HTM) category[5] as collateral in repo transactions

3 HFT and AFS securities are required to be marked to market and thus prone to any changes in interest rate scenario.

4 BPRD Circular No. 14 dated November 12, 2008

5 HFT and AFS securities are required to be marked to market and thus prone to any changes in interest rate scenario.

Figure 4.2.4 Exchange Rate and Swap Point

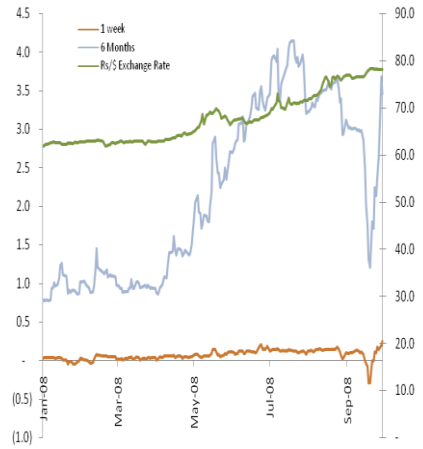


Figure 4.2.5 NOP in Million $

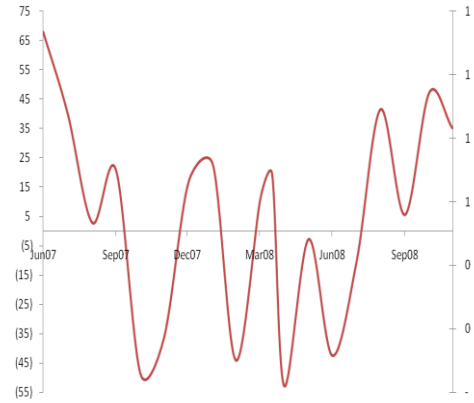
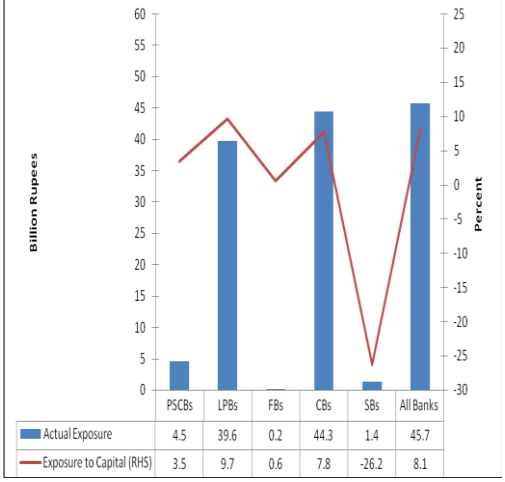


Figure 4.2.6 Exposure of Banks in Equities



	PSCBs	LPBs	FBs	CBs	SBs	All Banks
Actual Exposure	4.5	39.6	0.2	44.3	1.4	45.7
Exposure to Capital (RHS)	3.5	9.7	0.6	7.8	-26.2	8.1

with SBP, which will minimize the pressure on the banks for reliance on HFT and AFS for liquidity management purpose, without posing any revaluation risk.

The changes in term structure of interest rate increase the interest rate risk for the banks with significant re-pricing GAPs. For all the three time buckets, up to 3 months, 3-12 months and over 1 year buckets, re-pricing GAPs between the rate sensitive assets and rate sensitive liabilities of the banking system were generally at comfortable levels i.e. within the $\pm$ 10 percent range of the total assets (see Figure 4.2.3). Most of the gaps are in the positive range. Group wise, the PSBs and SBs have negative gap in shorter term, while LPBs have negative gap in the 3-12 months maturity band though most of them within acceptable limits. Further, SBs and PSCBs had high GAP, which in terms of their total assets stood at 20 and 29 percent respectively. Therefore, PSCBs and SBs are more prone to re-pricing risk.

Exchange rate risk takes into account the influence of changes in the exchange rate on the net value of foreign currency assets and liabilities. Rupee dollar exchange rate experienced further depreciation since Jun-08 and increased to Rs78 a dollar as on Sep-08 (see Figure 4.2.4) which post quarter further increased to above Rs80 for a dollar. Overall, the Rupee-Dollar exchange rate has depreciated by 15.3 percent till November 11, since the beginning of FY08. Net open position of the banks remained positive during the last couple of years, showed mixed trend this time around. Although it was negative at the start, it turned positive at the end of the quarter (see Figure 4.2.5) signifying that any devaluation in Pak rupee would benefit banks because of greater increase in rupee equivalent value of their assets as compared with the value of liabilities.

Equity price risk of the bank is mainly driven by the direct exposure of the banks in the equities market. Equity exposure of the banking system (which includes investments fully paid up shares both in listed and unlisted stocks but excluding the subsidiaries and associates) has decreased to Rs46 billion from Rs48 billion in Jun-08 (see Figure

Figure 4.2.7 Investment in Fully Paid up Ordinary Shares

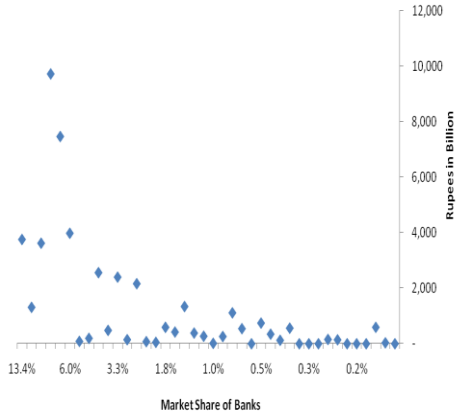
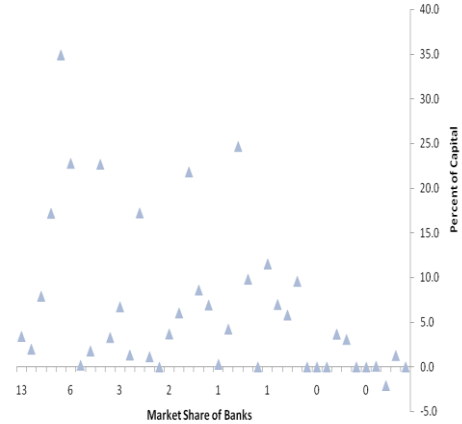


Figure 4.2.8 Investment in Share as Percentage of Capital



4.2.6)**.** Investments in terms of capital (percentage of the net assets), therefore, also experienced a decrease to 8.13 percent from 8.61 percent in the previous quarter. Group wise, although with a slight decrease of Rs2 billion from Jun-08, LPBs once again stand out in terms of the largest equity exposure, at Rs40 billion. This is followed by Rs4 billion exposure of PSCBs. The negative ratio of exposure to capital of SBs is because of the negative net assets of the one of the SBs.

Though the banks' equity exposures have not posed systemic issues during the quarter under review, stock market developments in subsequent months would be a cause of concern. Especially, around 30 percent dip in the KSE-100 index in a week after removal of floor has implication for the banks. In order to evaluate the impact, the equity exposure of the banks was stressed for 70 percent decrease in the equity prices. The stress test results show that it will impact the CAR of the system by 143 basis points. With the CAR of the system at 11.8 percent, the banking sector seems well placed to absorb such shocks.

Disaggregated analysis indicates that top 5 banks (carrying about 51.2 percent of the assets), hold just about 57 percent of exposure in the total equity investment (see Figure 4.2.7). Further 23 banks out of 40 banks had equity exposures of less than 5 percent in terms of their net assets (see Figure 4.2.8). On the other hand, 5 banks' equity exposures were more than 20 percent in terms of their net assets. Nonetheless, the exposure to equity market is still within manageable levels for the overall banking sector.

4.3 Liquidity Risk

Figure 4.3.1 Liquidity Indicators

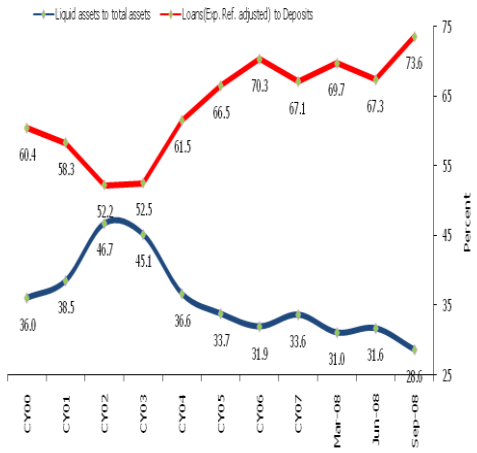


Figure 4.3.2 Maintained & Required Liquidity of TDL (in %)

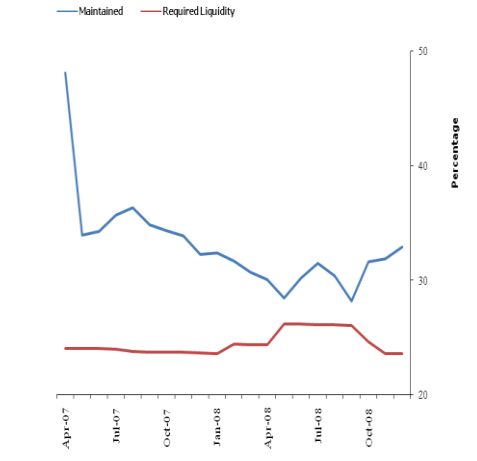
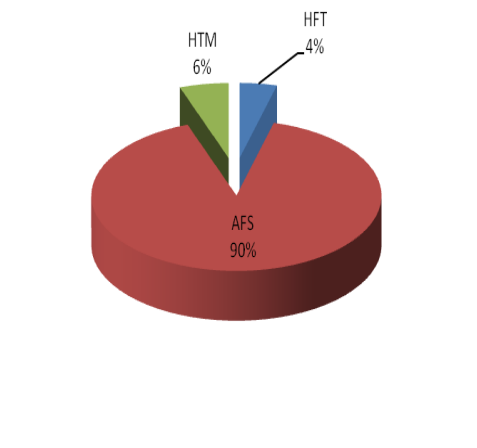


Figure 4.3.3 MTBs of the Banking System

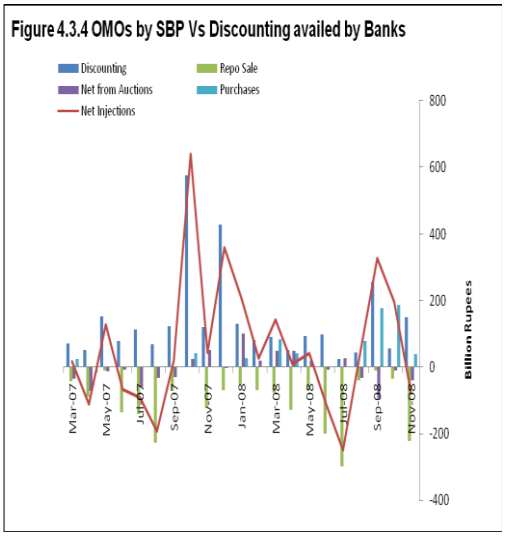


The liquidity of the banking system witness strains during the Sept-08 quarter which was corroborated by almost all of the liquidity indicators. These pressures mainly emanated from strong growth in loan portfolio and the passive to negative growth in deposit base that emerged in the backdrop of global financial crisis. Resultantly, Advances to Deposit ratio (ERF adjusted) a key liquidity indicator, moved up 6 percentage points to 73.6 in Sep-08. The ratio was at 67.1 percent in CY07. On the flip side liquid assets to total assets declined by 3 percentage point to 28.6 percent. This is also reflected in substantial decline in banks' holding of government securities.

The banking system has been experiencing volatile liquidity position particularly over the last two quarters under higher liquidity requirements which tightened bank's surplus liquidity. In May-08, liquidity maintained by the banks came down to 28.4 percent of TDL. Although the situation improved in the following months, liquidity pressures again emerged in Sep-08 around Eid-ul-Fitr, when liquidity maintained came down to 28.1 percent of TDL. It further declined to 26.9 percent by second week of October when excess reserves fell below 2.0 percent of the TDL. In order to provide liquidity to the system, SBP took a host of measures including reduction in CRR by 400 bps, exemption of the time deposits from application of SLR and allowing securities in held to maturity category for borrowing under SBP repo window. All these measures along with other interim monetary policy measures eased the liquidity pressures and provided banks with sufficient liquidity. As a result, liquidity position started to improve and liquidity maintained by the banks improved to 32.7 percent by third week of Dec-08 (see Figure 4.3.2).

The Government securities in various investment categories of Held-for-Trading (HFT), Available-for-Sale (AFS) and Held-to-Maturity (HTM) signify the liquidity available within the banking system. Total investment in the PIB and MTBs decreased further to 61 percent of the total investments in Sep-08 from 69 percent in June-08. MTBs also observed shift in various categories of investments; MTBs in AFS category decreased by 3 percent to 91 percent

Figure 4.3.4 OMOs by SBP Vs Discounting availed by Banks



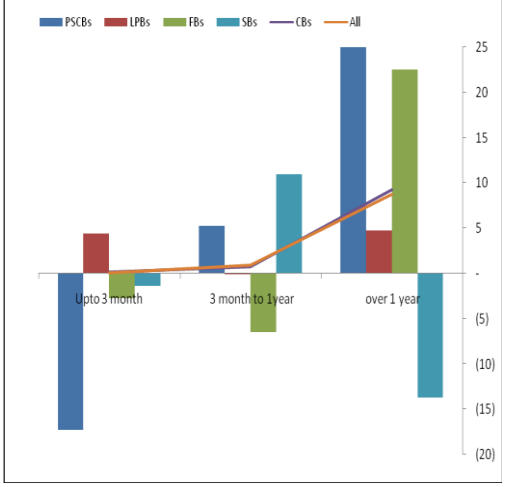
in Sep-08 (see Figure 4.3.3) while HFT has increased from 1 percent in Jun-08 to 4 percent in Sep-08. The liquidity decreased by 14.9 percent in Sep-08 due to a sharp decline in MTBs holding in AFS categories by 18.6 percent.

SBP, in line with its tight monetary policy stance, focused on the relatively shorter-end of the yield curve by efficiently using Open Market Operations (OMOs). However, the banking system, after witnessing tight liquidity conditions during the quarter, resorted to considerable discounting with SBP during the period to avail short-term liquidity support. (see Figure 4.3.4).

In another post quarter development, SBP, from the long term perspective, introduced advances to deposit ratio. The measure aimed to serve two purposes: encourage banks to go for aggressive deposit mobilization and to ensure smooth flow of credit to the various sectors of the economy while inculcating the prudence in banks asset liability profile.

GAPs between the maturity of assets and liabilities, a measure of funding liquidity risk, were on the satisfactory level for overall banking sector. However Group wise analysis raises concerns due to undesirable GAP position of the various banking groups; PSCB, FB and SB experienced significant gap as percentage of total assets beyond 10 percent limit in different maturity buckets. However, due to good liquidity management by the LPBs group holding significant share in the banking sector, overall banking sector remained within the limit of + 10 percent range (see Figure 4.3.5).

Figure 4.3.5 Maturity GAP (Assets - Liabilities) to Total



In conclusion, the developments during the second half of the year 2008 tested the ability of the banking sector and SBP to manage the liquidity stress situation. The timely measures taken by SBP not only helped ensuring adequate liquidity in to the system but instilled the confidence in the system.

5. Performance of Islamic Banking

Figure 5.1 Asset Growth

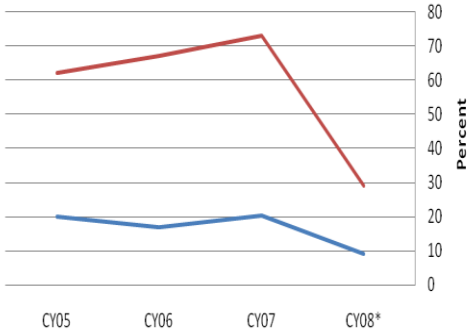
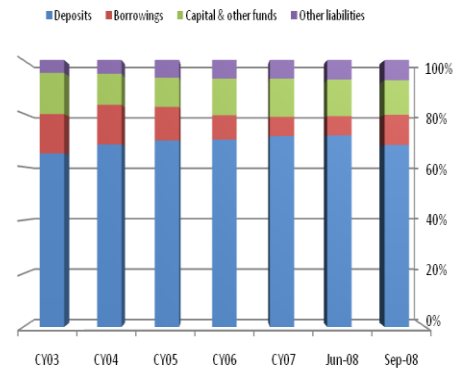


Table-5.1 Islamic Banking Participants

	CY02	CY03	CY04	CY05	CY06	CY07	Jun-08	Sep-08
No. of Islamic Banks (IBs)	1	1	2	2	4	6	6	6
No. of Branches	6	10	23	37	93	186	223*	261**
No. of conventional banks operating Islamic Banking Branches	-	3	7	9	12	12	12	12
No. of Islamic Banking Branches (IBBs)	-	7	21	33	57	103	103	106

* This includes 4 Sub Branches.
** This includes 24 Sub Branches.

Figure 5.2 Composition of Liabilities



Globally, Islamic banking assets have been growing at a faster pace than the overall banking system. Islamic finance has been growing at 20-30 percent per year over the past decade; according to independent research company Financial Insights[6]. The pace of growth has picked up over the past decade, driven by increased awareness and demand. Islamic banking in Pakistan started in CY02 and since then it has grown at a rapid pace.

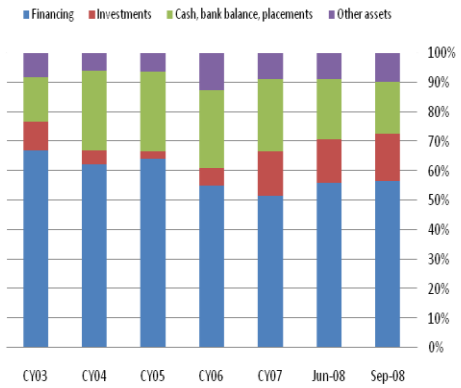
Growth of banking industry in Pakistan seen during 2000's touched its peak in CY07; the asset base of the banking system grew at a phenomenal pace. The growth of the Islamic banking has remained well above the growth of the overall industry. With exponential growth in asset base over the last half decade, Islamic banks are now converging to the pace of entire banking industry (see Figure 5.1). The assets of Islamic Banking system reached Rs251 billion with 6.7 percent growth during the quarter (YoY growth 41.3 percent) against a decrease of 0.1 percent for all banks. Consequently, the share of Islamic Banks in the banking system continued to increase i.e. it increased by 20 bps to 4.6 percent by end Sep-08.

Islamic Banking in Pakistan showed consistent expansion in their branch network over the quarter under review. The branch network increased to 369 by the end of the quarter compared with 291 at the end of 2007(see Table 5.1). In wake of increased pace of branch expansion in the last quarter of the year, Islamic banking branches have crossed 500 mark in Dec-08.

Analysis of the sources and uses of funds reveals that the deposits and financing dominate the balance sheet of the Islamic Banking System. Despite the slowdown in overall economic conditions, strain on liquidity of the banking system and depositors' positive perception towards Defence Saving scheme and other alternatives, deposits for Islamic banking grew at a rate of 1.4 percent to Rs171 billion during the quarter under review (YoY growth 38 percent). However, due to higher increase in borrowings during the quarter,

[6] Research paper on Islamic Banking, Big Interest in Interest-free Banking by Morgan Stanley September 5, 2005.

Figure 5.3 Composition of Assets



their share in overall funding structure deceased by 3.5 percent to 68.2 percent (see Figure 5.2).

Financing grew over the quarter by 8.1 percent (YoY growth of 61 percent) with Rs142 billion enhancing its share in asset base to 56.6 percent. Investments during the quarter up by 120 bps (YoY growth 58 percent) to 16 percent while share of Cash, Bank Balance and Placements stood at Rs44 billion, experiencing a 17.5 percent decline (see Figure 5.3).

Asset quality of the Islamic banks has remained steady during the quarter. The Non Performing Financing (NPF) of the system inched up by 0.1 percent to 2.2 percent, while the net NPFs decreased by same percentage point to 0.7 percent. The decreased in Net NPFs ratio has its basis in improved provisions; NPFs coverage ratio has improved by 3.7 percentage points to 65.9 percent (see Table 5.2).

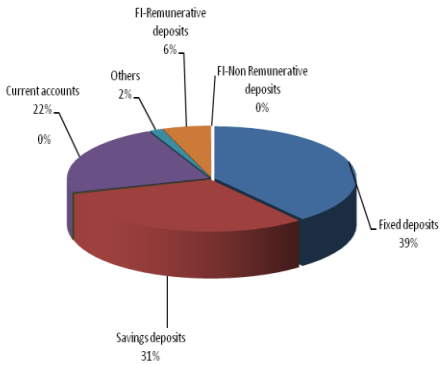
Table-5.2 Key Performance Indicators

Percent

Indicator	CY03	CY04	CY05	CY06	CY07	Jun-08	Sep-08
NPFs to total financing	0.7	0.9	1.0	1.3	1.2	2.1	2.2
Net NPFs to net financing	-	0.2	0.2	0.4	(0.1)	0.8	0.7
Provision to NPFs	100.0	82.3	80.6	72.0	108.7	62.2	65.9
Net Markup Income to total assets	1.7	1.4	2.3	2.4	2.9	3.9	3.9
Non Markup Income to total assets	2.2	1.4	1.7	0.9	1.2	1.0	0.8
Operating Expense to Gross Income	54.6	65.3	49.9	72.8	70.0	73.5	74.3
ROA (average assets)	2.2	1.2	1.7	0.9	0.9	0.9	0.8
Growth in Assets	84.5	241.8	62.0	66.9	72.9	10.8	6.7
Growth in Deposits	64.6	259.5	65.4	67.7	76.0	10.8	1.4
Growth in Financing	147.0	218.2	66.3	43.3	62.1	9.8	8.1

Due to relatively slow growth in deposit compared with financing, financing to deposits ratio increased to 83 percent in Sep-08 from 77.9 percent in Mar-08. This higher than conventional banking ratio, reflects upon the very nature of Islamic Banking operations as well as the lack of alternative remunerative avenues in the financial market for placement of funds. However, with the development of sufficient Shariah compliant investment products, increasing Islamic Banking awareness among the general public, continued expansion and entry of new players Islamic banks are expected to shift their asset profile from financing to alternative avenues.

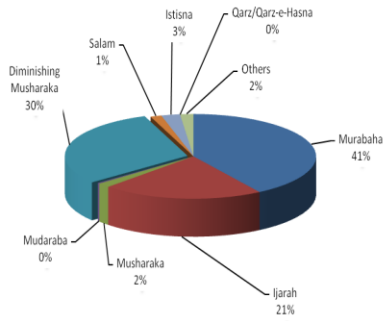
Figure 5.4 Composition of Deposits



Capital adequacy of the IBIs though also declined by 180 bps to 16.4 percent, however the same remained still well above the minimum required CAR of 8 percent. This strong CAR indicates IBIs sound solvency position as well as their potential to support business expansion.

The disaggregated analysis of the deposits shows the persistent trend in deposits mix. The fixed deposits increased by 100 bps to 39 percent in Sep-08, while saving deposits also increased by 100 bps to 31 percent in Sep-08. Non-remunerative current deposits decreased by 90 bps to 22 percent whereas deposits from financial institutions

Figure 5.5 Mode of Financing



declined by 60 bps to 6 percent in Sep-08 (see Figure 5.4).

The composition of financing signifies that Murabaha and Ijarah remained the major source of financing; however, over the last few quarters they are losing their share to other modes like Musharika, Diminishing Musharika and Istisna. The share of Murahaba this time rebounded by an increase of 3 percentage points and Ijara declined by 1 percentage points during the quarter. The share of Diminishing Musharaka increased from 29.4 percent in Jun-08 to 30 percent in Sep-08. The combined share of these three modes of financing constitutes 92 percent of the total financing by Islamic Banking Institutions compared with 88.9 percent in the last quarter (see Figure 5.5).

Table-5.3 Income Statement (Billion rupees)

	CY03	CY04	CY05	CY06	CY07	Jun-08	Sep-08
Markup Income	0.4	1.1	3.2	6.4	12.7	9.1	15.0
Markup Expense	0.2	0.5	1.5	3.5	6.8	4.5	7.6
Net Markup Income	0.2	0.6	1.6	2.9	5.9	4.5	7.4
Provision Expense	(0.0)	0.0	0.2	0.2	0.8	0.3	0.7
Non Markup Income	0.3	0.6	1.2	1.1	2.4	1.1	1.5
Operating Expense	0.3	0.8	1.4	2.9	5.9	4.2	6.6
Profit Before Tax	0.2	0.4	1.2	0.8	1.7	1.2	1.5
Tax	0.0	0.0	0.3	(0.0)	(0.2)	0.19	0.1
Profit After Tax	0.2	0.3	1.0	0.9	1.6	1.0	1.4

The IBB posted a healthy after tax profit of Rs 1.4 billon compared with Rs1 billion in corresponding quarter of CY07 (YoY growth 57 percent). Net markup income and non-mark-up income also reflected increasing trend during the quarter under review compared to corresponding period of the last year (see Table 5.3). The incidence of higher operating expense as percentage of gross income i.e. 74.3 percent shows improvement over the last quarter; however the ratio stills remains higher than previous years' statistics. This increase in cost income ratio can be traced to expanding branch network, higher outlays on induction of qualified and experienced personnel, better product development as well as institution of technology and risk management regime. The ROA has remained 0.9 percent for the quarter-ended Jun-08 (see Table 5.2).

The overall performance of IBIs during the quarter remained heartening. However, they need to keep check on the growth of NPFs and need to improve and strengthen their risk management capacities for better coping with the building vulnerabilities in the macroeconomic environment. Nonetheless, with improved profitability coupled with sound capital adequacy, and well-maintained and expanding branch network, IBIs are well placed to expand and gain further share in the banking system.

6. Resilience of Pakistan's Banking System Towards Stress Tests

6.1 Sensitivity Stress Testing

Resilience of the banking system of Pakistan has been assessed using the top-down approach of stress testing. The methodology used for this stress testing exercise is simple sensitivity analysis. This stress test takes into account the impact of different shocks to credit and market risk factors on the capital of the banks. These shocks are based on hypothetical moves in the risk factors. The stress tests are applied on both the individual banks as well as the banking groups' viz. Public Sector Commercial Banks (PSCBs), Local Private Banks (LPBs), Foreign Banks (FBs), Specialized Banks (SBs) and All Banks.

The stress testing exercise assumes the stress scenarios along the three factors i.e. credit, market and liquidity shocks (see Box 6.1). The Box 6.2 highlights the results of the stress tests conducted on the individual banking data.

The detailed analysis of the stress test results is mentioned below.

Box 6.1
Reference Shocks for Stress Tests for Quarter ended on September 30, 2008

Credit Shocks
Credit Shock C-1 15% of performing loan moving to substandard, 15% of substandard to doubtful, 25% doubtful to loss.
Credit Shock C-2 Tightening of loan classification on all types of loans classified.
Credit Shock C-3 Deterioration of loans to the textile sector (25%) directly downgraded to doubtful category
Credit Shock C-4 A 25% of consumer loans classified into doubtful category.
Credit Shock C-5 A default of 3 largest exposures. (Fund Based)

Market Shocks

Interest Rate Shocks
Market Shock IR-1 Increase in interest rates by 500 basis points.
Market Shock IR-2 Shift coupled with flattening of the yield curve by increasing 500,300 and 200 basis points in the three maturities respectively.
Exchange Rate Shocks
Market Shock ER-1 Depreciation of currency exchange rate by 25%
Market Shock ER-2 Appreciation of currency exchange rate by 25%
Market Shock ER-3 Depreciation of PRs against all currencies (25%) and deterioration of un-hedged FX loans
Equity Price Shocks
Market Shock EQ-1 Fall in the equity prices by 50%.
Market Shock EQ-2 Fall in the equity prices by 70%.

Combined Credit and Market Shocks
Combined Credit and Market Shock Comb -1 Interest rates increase (5%), deterioration of loans to the textile sector (25%) directly downgraded to doubtful category, and fall in equity prices by 50%.

Liquidity Shocks
Liquidity Shock L-1 Withdrawal of customer deposits by 2%, 5%, 10%, 10% and 10% for five consecutive days respectively.

Box-6.2
Results of Stress Tests of the Banking System
Based on Data of September 2008 Quarter

Shocks			*Impact of Shocks %age Point Change in CAR*	*Adjusted CAR- After Shock*
Credit Shocks				
	C-1	Deterioration in the quality of loan	-2.41	9.36
	C-2	Tightening of loan classifications	-0.75	11.03
	C-3	Deterioration of loans to Textile sector	-1.47	10.31
	C-4	Deterioration in NPLs ratio of consumer finance	-0.58	11.19
	C-5	Default of 3 largest exposures	-4.51	07.27
Market Shocks				
Interest Rate Shocks				
	IR-1	Shift in the yield curve	-0.85	10.93
	IR-2	Shift and steepening of the yield curve	-0.39	11.39
Exchange Rate Shocks				
	ER-1	Depreciation of Rs/US$ exchange rate	0.43	12.21
	ER-2	Appreciation of Rs/US$ exchange rate	-0.44	11.34
	ER-3	Depreciation of PKR and deterioration of un-hedged FX loans	-0.21	11.57
Equity Price Shocks				
	EQ-1	Fall in the Equity Prices by 50 percent	-0.86	10.92
	EQ-2	Fall in the Equity Prices by 70 percent	-1.43	10.34
Combined Credit and Market Shocks				
	Comb-1	Combined impact of shocks envisaged under IR-1, C-3 and Eq-1	-2.72	9.06
			Banks Illiquid after Days	
Liquidity Shocks			**2 3 4 5**	
	L-2	Withdrawal of customer deposits maximum by 10 percent	0 0 2 7	

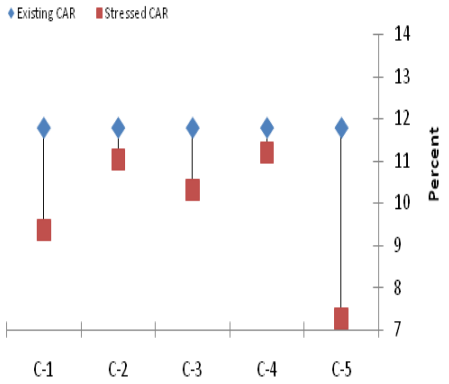
Note: The results have not been adjusted for the impact of deferred tax benefits.

Credit Risk

Credit risk is considered as the foremost risk being faced by the banks. It is the risk associated with the non-repayment of the loan principal and the interest by the counterparty (borrower). In the sensitivity analysis, five different types of stress tests have been carried out. The Credit Shock **C-1** assumes an Increase in NPLs equivalent to 15 percent of performing loans moving to substandard category, 15 percent of substandard to doubtful and 25 percent doubtful loans declared as losses. The results from applying this shock on the banking data indicate a reduction in the capital adequacy ratio (CAR) of the banks by 2.41 percent, after shock adjusted CAR would stay at 9.36 percent (Box 6.2). Similarly by tightening the provisions as indicated in shock **C-2**, the overall CAR of the banks faces a reduction of 0.75 percent to 11.03 percent.

The Credit shock **C-3** deals with the loans extended to the textile sector as its share is 19 percent in total loans portfolio. Applying the shock

Figure 6.1.1 Impact of Credit Shocks on CAR

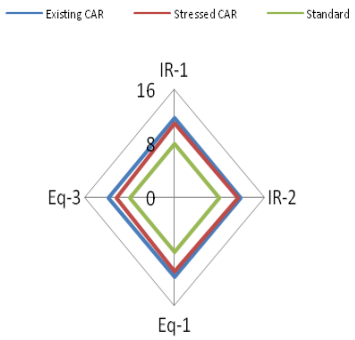


of 25 percent and directly downgrading loans to doubtful category, the CAR of the banking sector showed a decline of 1.47 percent. CAR of Local Private Banks (LPBs) reduced by 1.63 percent under this shock. However, the decline in CAR of LPBs still kept the adjusted CAR to the level of 9.55 percent. In case of shock **C-4** applied to the consumer finance portfolio of the banks, the CAR of the banks declined by 0.58 percent. Overall as depicted by the Credit shocks, the declining CAR of specialized banks illustrates a weak credit portfolio. Other banking groups remained healthy with their CAR well above 8 percent.

The Credit shock **C-5**, is based on the assumption that the three largest fund based exposures of the banks default. The impact of this shock is the largest on the CAR. The CAR of banking sector would declined by 4.51 percent which reduced the adjusted CAR to 7.27 percent. The adjusted CAR of commercial banks (CBs) would decline to 7.68 percent indicating an abnormally large magnitude of shock applied on the banking data (see Figure 6.1.1).

Market Risk

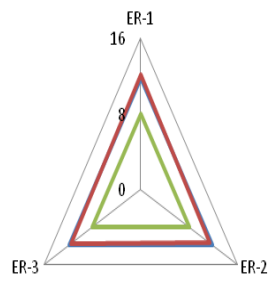
Figure 6.1.2 Impact of Interest Rate & Equity Price Shocks on CAR



Market risk is associated with the uncertainty in the portfolio value due to movements in the market equilibrium on account of changes in the interest rates, exchange rates, equity prices and the availability of liquidity. The unexpected movement in interest rates is the interest rate risk which dominates in the market risk classification. This stress test analysis considers two shocks to the **interest rate risk**. In shock **IR-1**, interest rates are increased by 500 basis points. This shock would reduce the CAR of the banks by 0.85 percentage points to 10.93 percent. Similarly, in shock **IR-2**, the shifts coupled with flattening of the yield curve by increasing 500,300 and 200 basis points in the three-month, three months to one year and over one year maturities respectively, also deteriorated the CAR of the banks by 0.38 percent to 11.39 percent (see Box 6.2 and Figure 6.1.2).

The fluctuations in **exchange rates** also distort the market equilibrium. The risk associated with the unexpected movements in the exchange rate is also highlighted in three different shocks applied to

Figure 6.1.3 Impact of Exchange Rate Shocks on CAR



the banking statistics. In shock **ER-1**, a 25 percent depreciation of currency exchange improves the CAR of the banks by 0.43 percent. An increase in CAR reflects that assets of the banks in foreign currency are more than liabilities of the banks denominated in the foreign currency. However, in shock **ER-2**, the CAR of the banks decreases by 0.44 percent while the domestic currency is assumed to be appreciated by 25 percent. An appreciation of foreign currency requires banks to book deficit on revaluation of foreign currency which in turn reduces the CAR of the banks. In case of shock **ER-3** in which un-hedged foreign currency loans are depreciated by 25 percent, the CAR of the banks reduces by 0.21 percentage points to 11.57 percent (see Figure 6.1.3).

The movements in the **equity prices** also pose a significant market risk as the value of investments made in the equity and capital markets may face a sudden decline. The analysis includes applying two major shocks to the equity investments made by the banks. In first shock **EQ-1**, the equity prices are assumed to fall by 50 percent. In this case, the CAR of the banks falls by 0.86 percent. CAR of the LPBs fell by 1.03 percent to 10.15 percent. In even worse shock **EQ-2**, which entails reduction in equity prices by 70 percent, the CAR of the system is reduced by 1.43 percent. The impact of the shock has been more profound on the commercial banks as its CAR declined by 1.47 percent.

The **liquidity risk** in the banking industry is due to the imbalances between maturities of the assets and liabilities. In the recent sub-prime financial crisis, many strong banks worldwide have become insolvent due to asset-liability mismatches. In order for banks to remain solvent and the financial system to recover from the crisis, the central banks have injected huge sum of money supply into the system. The stress test on liquidity risk tests the financial health of Pakistani banks whether they can withstand large sums of withdrawal. In shock **L-1**, a deposit withdrawal of 2 percent, 5 percent, 10 percent, 10 percent and 10 percent for five consecutive days was assumed. None of the commercial banks became illiquid in first three days but on the fourth day, two (2) commercial banks

and on the fifth day, seven (7) commercial banks become illiquid.

Combined Credit and Market Shocks

In case of combined credit and market risk, a shock **Comb-1**, that Interest rates increase (5 percent), deterioration of loans to the textile sector (25 percent) directly downgraded to doubtful category, and fall in equity prices by 50 percent shows the largest impact on the CAR of the banks. The CAR of all the banks decreased by 2.72 percent, which significantly reduced the adjusted CAR to 9.06 percent. While considering the group-wise impact, the CAR of the LPBs and PSCBs faced a decline of 3.12 and 1.93 percent respectively. However, all the banking groups except the SBs showed adjusted CAR above 8.0 percent.

Conclusion

The sensitivity based stress tests with more adverse shocks on the individual banking statistics for the period September Q3-2008 reveals that the generally the banks are resilient towards moderate and large shocks to the banking system.

Box 6.3: Types of Stress tests

Stress testing is a generic term that involves various techniques used to assess the resilience of the institutions or the sectors to exceptional but plausible events. In its simplest form, application of stress testing technique on financial institutions is a way of revaluing a portfolio and consequently measuring the downside impact on earnings /capital of institutions using a set of assumptions which are rare but possible. The assumptions could be based on judgments, past scenarios or inferred from econometric models.

As the stress test aims at evaluating future financial cost of shocks applied, the financial impact of the exceptional but possible risk event from the supervisory perspective acts as early warning system for individual institution as well as for the regulators of the financial system. Furthermore, stress tests provide valuable information to the supervisory authority for policy making to ensure overall financial stability

The system focused stress tests are conducted in following ways depending upon the level of sophistication used in the analysis:

1. Sensitivity Based: It is the "simple" version of stress tests that can be carried out on the individual institution level portfolio as well as on the aggregate data. The sensitivity analysis uses simple calculations to measure the impact of a change (shock) in any one variable on the financial accounts of the firm or portfolio. The advantage using sensitivity based stress test lies in its inherent simplicity. However, this is also its disadvantage. The stress tests based on sensitivity analysis fails to explain the behavioral relationships between the variables. Furthermore, the sensitivity analysis is purely judgmental and also it is static which restricts the sensitivity analysis to forecast only on short term time horizon.
2. Scenario Based: The Scenario or the "Macroeconomic" based stress testing is increasingly adopted by the central banks and regulators worldwide as it overcomes the issues posed by the sensitivity based stress testing. The scenario based stress testing construct complex scenarios in the light of portfolio characteristics and economic and regulatory environment. These scenarios are then analyzed statistically and econometrically to stress tests the behavioral relationships among the variables. Furthermore, the scenario based stress testing has the capability to forecast medium and long term time horizons.

In addition, the stress tests fall into two main classes based on the nature of portfolio and data characteristics is employs. These classes are;

1. The top-down approach: This approach is also referred as the "Micro" level approach. In this approach, the downside impact of stress event is calculated on the overall portfolio by breaking down the portfolio to gain useful insights of the stress tests. This type of stress test is usually done at the individual institution level.
2. The Bottom-up approach. This approach is also referred as the "Aggregate" approach or the "Macro" approach. In this type of stress testing, the losses of all institutions in relation to that particular event or scenario are aggregated and therefore, a generalized version applicable to the entire system is obtained. This level of stress testing is usually done at the supervisory level.

Banking Surveillance Department has so far been carrying out stress test on the basis of sensitivity analysis. It has started performing Macro Stress Testing exercise on quarterly basis from March, 2008. Unlike sensitivity based stress testing which considers credit, market and liquidity risk of the banks, macro stress testing initially covers the credit risk of the entire banking system.

6.2 Macro Economic Stress Testing

6.2.1 Introduction

In recent years, the risk management practices of the financial institutions worldwide have become highly complex and sophisticated. This has necessitated the need for understanding and assessing the weaknesses in the system in face stress situation. A number of regulators around the world are using stress testing technique for evaluating the risk facing the system. With the passage of time, central banks are moving from simple sensitivity analysis to macro stress testing (Box: Types of stress testing). The significant feature of the scenario / macroeconomic stress testing is the construction of scenarios based on portfolio characteristics and / or in the light of economic and regulatory environment. Moreover, an econometric and statistical model is also constructed that translates the effect of scenarios on the aggregate portfolio of the financial institutions. This section will present the macro stress testing approach and resilience of the banking system of Pakistan under various stress scenarios.

There are two main types of models used in the scenario/ macroeconomic based stress testing. These are:

1. Mark to market approach: In this approach, the aggregate portfolio of the financial institutions is modeled against changes in the credit quality of the portfolio.
2. Default mode approach: In this approach, the aggregate portfolio is modeled against unexpected changes in the losses (Non-performing Loans) that impact the overall portfolio and hence the overall health of the financial system.

The default mode approach to stress test the losses (NPL ratios) has been widely used by the central banks and the regulators. This is due to the fact that credit losses are typically considered to be a dominant reason for the financial fragility of the banks. Moreover, the analysis proves to be very useful in assessing the impact of economic and

regulatory variables on the financial health of the banks.

6.2.2 Scenario Based Stress testing for Pakistani Banks

This section presents the scenario based stress testing analysis using the default mode approach. In this regard, the Credit Portfolio View (CPV) methodology has been implemented to stress test the NPL ratio of Pakistani commercial banks. The CPV methodology is based on the assumption that macroeconomic factors such as the GDP, Inflation, interest rates and exchange rates affect the NPL behavior of the banks. An imbalance in the macroeconomic environment will leave its mark on the financials of the banking system and may increase the NPL ratio.

The CPV model is given by the following equations;

$$NPLR_t = \alpha_0 + \alpha_1 CPI_t + \alpha_2 GDP_t + \alpha_3 EXR_t + \alpha_4 LR_t + \alpha_5 KSE_t + \nu_t \quad (01)$$

$$NPLC_t = \varphi_0 + \varphi_1 CPI_t + \varphi_2 GDP_t + \varphi_3 EXR_t + \varphi_4 LR_t + \varphi_5 NIM_t + \varphi_6 PAT_t + \gamma_t \quad (02)$$

Furthermore, the CPV model assumes that the macroeconomic variables are dependent upon their lagged values (autoregressive in nature). This is represented by the equation;

Similarly,

$$Macro_t = \beta_0 + \beta_1 Macro_{t-1} + \beta_2 Macro_{t-2} + \pi_t \quad (03)$$

$$NIM_t = f(banking\ spreads, KIBOR_{3M}) \quad (04)$$

$$PAT_t = f(NPLR, ROI, NIM) \quad (05)$$

The data to be employed in econometric modeling consists of macroeconomic and banking variables on quarterly frequency for the period Q1-CY1997 to Q3-CY08. The main variables used in the model are;

1. Real GDP transformed into quarterly actual and potential GDP[7].
2. Industrial Production Index (IPI).
3. Consumer Price index (CPI).
4. Exchange Rates, (USD/PKR) denoted by *EXR*

[7] The procedure for transforming yearly GDP to quarterly GDP is taken from the paper;
Farooq Arby, Irem Batool (2007),"Estimating Quarterly Gross Fixed Capital Formation", SBP Working Paper No 17.

5. Bank Lending Rates (weighted average on fresh loans) denoted by *LR*
6. Banking Spreads.
7. Karachi Stock Exchange Index (KSE-100)
8. Net Interest Margin (NIM)
9. Return on investments (ROI)
10. KIBOR (3-month)
11. Banking Profitability (PAT)

Since Non-performing Loan ratio (NPLR) is a universal indicator of measuring the overall health of the credit disbursed by the banking system, the NPLR is considered to be a function of macroeconomic variables in this exercise as shown in equation 01. The NPL to bank Capital (NPLC) ratio is also significant in determining the sustainability of the banking system as shown dependent variable in equation 02. Since more Net Assets allows banks to disburse more credit, there is a certain probability that the loans will be classified as NPL. The non performing loans are then translated into losses that directly affect the banking profitability and in some cases may even wipe out the equity position of the banks. Hence, it is suggested that a lower NPLC ratio is an indicator of increased sustainability of the banking system.

In case of Pakistan, the NPLR and NPLC ratios have shown a declining trend in period Q4CY02 – Q3CY08, though NPLR started to increase from Q1CY07. Furthermore, healthy credit portfolio and risk management practices of the commercial banks have enabled the banking sector to grow more robustly than any other sector of the country. Over the last four years, the banking sector has been growing at an average rate of 32 percent per annum. The rising profitability, availability of easy liquidity until CY06 and implementation of BASEL II framework has enabled the banks to enhance its capital base. This has resulted in the NPLC ratio to significantly drop from 126 percent in Q4CY02 to 43 percent in Q3CY08.

Table 6.2.1 Regression Results of Equation 01

	Model 01		Model 02	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
	Dependent Variable: *NPL to Loans Ratio (NPLR)*			
C	3.7396	9.2416	3.041	11.6254
Lending Rate	0.0567	3.5948	0.0121	6.3624
CPI	-0.0777	-5.2904	-0.0044	-3.2688
Exchange Rate	-0.0124	-1.8963	0.0012	0.4508
GDP Growth Rate	-0.2578	-7.022		
KSE Index			-0.3125	-1.9587
Industrial Production			-0.0017	-11.047
R^2	*0.88*		*0.89*	
Durbin Watson Test	*1.82*		*0.76*	

6.2.3 Estimation Results

The Table 6.2.1 presents the regression result of equation 01. Two different sets of variables are taken for regression of the dependent variable, NPLR. The model 01 is chosen after checking for

serial correlation, hetroskedasticity and model stability. The model 01 shows a negative relationship between NPLR and GDP. It states that a 1 percent reduction in GDP will lead to 0.25 percent increase in NPLR. Similarly, the lending rate (LR) shows a positive relationship with the NPLR. However, the interesting observation in Model 01 lies in the sign of CPI (Inflation).

There are different economic theories associated with the relationship between inflation and the NPLR. One theory states that as the inflation decreases, the incentives for producers to produce more decreases leading to a decline in output and profitability. However, there is another argument that supports the direct relationship between inflation and NPLR. As inflation increases, the cost of inputs increases leading to increased cost of production and therefore profitability decreases. This decline in profitability and revenue may lead to increase in NPLR.

Table 6.2.2 Regression Results of Equation 02

	Model 01		Model 02	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
	Dependent Variable: *NPL to Bank Capital (NPLC)*			
C	1.1214	1.9998	1.6255	3.3347
Lending Rate	0.1214	9.1287	0.2121	1.9891
CPI	-0.0044	1.412		
Exchange Rate	-0.0312	-1.997		
PAT	1.5812	1.7472	2.5324	6.6127
NIM	0.3457	2.2254	3.1897	11.4245
KIBOR			-2.1312	-3.3013
spreads			1.1475	2.2247
R^2	*0.85*		*0.94*	
Durbin Watson Test	*1.41*		*1.99*	

Similarly, the equation 02 is also regressed against different economic and banking variables. In this case, Model 02 is chosen on the basis of stochastic assumptions of ordinary least squares and model stability. The model 02 shows a positive relationship between NPLC and spreads, NIM, Profitability (PAT) and lending rates. However, the NPLC shows a negative relationship with KIBOR rate. Accordingly, a 1 percent increase in KIBOR rate will decrease NPLC by 2.13 percent.

Table 6.2.3 Correlation Matrix of the Residuals of Equations 01 and 02

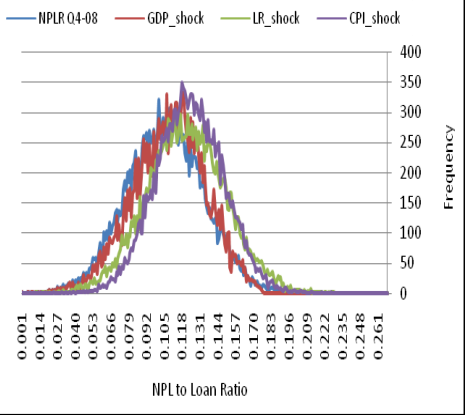
	GDP	CPI	EXR	LR	NPLR		NIM	PAT	KIBOR	LR	Spreads
GDP	1	-0.08	-0.14	-0.12	-0.24	NIM	1	0.03	-0.04	0.15	0.21
CPI	-0.08	1	0.63	0.21	-0.3	PAT	0.03	1	0.23	0.13	0.13
EXR	-0.14	0.63	1	0.1	-0.1	KIBOR	-0.04	-0.09	1	0.02	-0.16
LR	-0.12	0.21	0.1	1	-0.16	LR	0.15	0.13	0.02	1	0.36
NPLR	-0.24	-0.3	-0.1	-0.16	1	Spreads	0.21	0.09	-0.16	0.36	1

The CPV methodology also requires the explanatory macroeconomic variables to be regressed to account for seasonality. Therefore, equation 3 was also estimated using Autoregressive methods. The residuals obtained from equation 1, 2 and 3 were used to calculate the correlation and variance-covariance matrices of the variables used in the regression equations. The Table 6.2.3 shows correlations between explanatory variables used in the regression analysis. This table also validates the relationships among macroeconomic and banking variables. For instance, NPLR shows a negative correlation with Exchange rate (-0.1) and also GDP shows a weak negative correlation with CPI, i.e. (-0.08).

The CPV methodology requires construction of normally distributed random variables which are multiplied with the Cholesky matrix[8] to simulate for the error terms of the variables. In this exercise, 20,000 random errors were generated to simulate the expected value of NPLR for period (t+1) i.e. Q4-2008.

Once the expected NPLR is forecasted, the shocks were applied to macroeconomic variables used in the equations 1 and 2. Shocks are applied on the basis of historical scenario. The residuals of the autoregressive macroeconomic regression equations (equation 03) are standardized by dividing their variances and then used in the simulation process. In this way, the simulated graph as shown in Figure 6.2.1 is produced and the expected losses, unexpected losses and percentiles are calculated.

Figure 6.2.1 Simulated NPL Ratios



6.2.4 Simulation Results

The Figure 6.2.1 shows the graph of simulated NPLR projected for period Q4-2008. It also shows different scenarios generated by applying shocks to macroeconomic variables one by one.

The Table 6.2.4 shows the final results of the macroeconomic stress testing exercise. Under normal conditions with no shock given to Model 01, the projected NPL ratio for period Q4-2008 is averaged to be 8.85. The unexpected movements in NPL ratio at different percentiles is also shown in the Table 6.2.4.

Table 6.2.4 Expected Movements in NPL Ratio using Historical Simulation Method

	Base line	Under Stress		
		CPI	GDP	LR
Expected Loss	8.85	10.29	11.19	11.95
Unexpected Loss at				
90.00%	12.95	13.45	16.11	14.57
95.00%	13.81	15.78	16.42	15.83
99.00%	16.69	17.32	17.88	18.64

Similarly, while applying shock to the GDP by using historical simulation approach, the average NPL ratio increases to 11.19 percent. Furthermore, there is 1 percent probability that the NPL ratio will increase beyond 17.88 percent while giving shock to the GDP. Similarly, while applying shocks to the lending rates, there is one percent probability that the NPL ratio will increase beyond 18.64 percent.

Table 6.2.5 Expected Movements in NPLC Ratio using Historical Simulation Method

	Base line	Under Stress			
		KIBOR (3M)	PAT	NIM	LR
Expected Loss	40.6	42.12	38.7	40.85	41.91
Unexpected Loss at					
90.00%	43.03	45.05	42.15	44.11	44.65
95.00%	43.11	48.23	44.9	48.23	49.53
99.00%	46.81	52.11	49.21	50.65	55.13

The NPLC ratio is also simulated following the same methodology as of NPLR. The stress was applied to KIBOR(3M) Rates, Banking Profitability (PAT), NIM

[8] In CPV methodology, the co-variances of residuals of equations 1, 2 and 3 are arranged in form of symmetric matrix. Further, the symmetric matrix is decomposed in upper and lower triangular matrices. This decomposition of symmetric matrix is called Cholesky decomposition and the resultant matrix is referred as Cholesky matrix.

Table 6.2.6 Scenarios Results for Stress Testing NPL Ratio (in percent)

	Scenario 01	Scenario 02	Scenario 03	Scenario 04	Scenario 05	Scenario 06
Expected Loss	10.88	12.23	13.88	16.63	11.11	8.25
Unexpected Loss at						
90th Percentile	16.67	16.98	17.41	18.85	14.54	10.12
95th percentile	17.45	18.12	18.56	19.52	15.88	10.58
99th percentile	18.25	19.13	20.87	21.85	16.31	11.05

Scenario 01: A 2.5 percent reduction in the estimated Q3-CY08 GDP[1]

Scenario 02: A 5 percent reduction in the estimated Q3-CY08 GDP

Scenario 03: A 5 percent increase in the Q3-CY08 lending rates

Scenario 04: A 10 percent increase in the Q3-CY08 lending rates

Scenario 05: A 10 percent depreciation in the Q3-CY08 Exchange rates

Scenario 06: A 5 percent increase in the existing Q3-CY08 CPI rate

Table 6.2.7 Impact of Macroeconomic Stress testing on Capital Adequacy of Banks

Δ CAR, CAR after shock in Percent

	Baseline		GDP		CPI		LR	
	Δ CAR	CAR after shock	Δ CAR	CAR after shock	Δ CAR	CAR after shock	Δ CAR	CAR after shock
Expected Loss	-0.08	11.72	-0.49	11.31	-0.33	11.47	-0.62	11.18
Unexpected loss at								
90th Percentile	-0.8	11	-1.36	10.44	-0.8	11	-0.89	10.91
95th Percentile	-0.95	10.85	-1.37	10.33	-1.3	10.5	-1.32	10.48
99th Percentile	-1.47	10.33	-1.68	10.12	-1.58	10.22	-1.82	9.98

and Lending Rates (LR) The expected movements in the NPLC ratio is given in the Table 6.2.5.

Given the significance of NPL ratio in assessing the financial stability of the banks, the exercise also conducted hypothetical simulation in which the judgmental values macroeconomic variables were used to simulate the stressed NPL ratio. As shown in Table 6.2.6, the Q3-CY08 values of macroeconomic variables have been enhanced to certain percentage. For instance, in scenario 3, the lending rates that were observed in Q3-CY08 were enhanced by 5 percent to stress test the NPL ratio for the period Q4-CY08.

6.2.5 Impact on Capital Adequacy Ratio of Banks

Since the NPL ratio affects the profitability as well as the capital of the banking sector. Therefore, the results mentioned in Table 6.2.4 showing the movements in NPL ratio due to simulated historical shocks applied on macroeconomic factors are used to estimate the impact on Capital Adequacy Ratio (CAR) of the banking Sector as shown in Table 6.2.7.

Under the baseline scenario (normal circumstances) in which the NPL ratio is projected to be 8.85 percent for the period Q4-CY08, the impact of the rising NPL ratio on Capital Adequacy Ratio (CAR) shows a change (Δ) in CAR by 0.08 percent which leads to a reduction in CAR from 11.8 percent (as on Q3-CY08) to 11.7 percent. Similarly, the impact of a GDP shock (11.29 percent level of NPL) would translate into a reduction in CAR by 0.5 percent lowering the CAR aftershock to 11.3 percent. The largest change in CAR is observed at the 99th percentile level of the historical lending rate level which drastically reduces the CAR by 1.82 percent to 9.98 percent level.

6.2.6 Limitations

The CPV methodology is used extensively in the central banks and in the supervisory authorities of industrialized countries backed by their internal macro-econometric model and a large database of banking and macroeconomic variables. However, in case of Pakistan, the non-availability of macro-econometric model and limited data under-estimates the scenario based stress test results.

Furthermore, due to a limited time series, it is highly likely that the historical scenarios are not necessarily the worst-case scenarios; the maximum changes are not necessarily the worst changes to occur. Furthermore, in case of regression, limited time series data often poses serious stochastic problems of hetroskedasticity, autocorrelation and multicolinearity.

Annex-I

Financial Soundness Indicators of the Banking System

Indicators	2003	2004	2005	2006	2007	Jun-08	Sep-08
CAPITAL ADEQUACY							
Risk Weighted CAR							
Public Sector Commercial Banks	11.0	13.4	14.5	15.2	17.8	15.5	15.1
Local Private Banks	9.0	10.1	10.6	12.7	12.8	11.6	11.2
Foreign Banks	23.0	17.4	16.4	15.0	13.5	14.0	18.5
Commercial Banks	**11.1**	**11.4**	**11.9**	**13.3**	**13.8**	**12.4**	**12.2**
Specialized Banks	(28.2)	(9.0)	(7.7)	(8.3)	(7.8)	(0.7)	(4.1)
All Banks	**8.5**	**10.5**	**11.3**	**12.7**	**13.2**	**12.1**	**11.8**
Tier 1 Capital to RWA							
Public Sector Commercial Banks	8.2	8.6	8.8	11.1	13.0	11.9	11.9
Local Private Banks	7.0	7.5	8.3	10.4	10.5	9.5	9.3
Foreign Banks	23.0	17.1	16.1	14.3	12.9	13.4	18.0
Commercial Banks	**9.1**	**8.6**	**9.1**	**10.8**	**11.1**	**10.1**	**10.1**
Specialized Banks	(28.7)	(15.0)	(13.6)	(13.3)	(13.5)	(7.8)	(9.1)
All Banks	**6.5**	**7.6**	**8.3**	**10.0**	**10.5**	**9.7**	**9.7**
Capital to Total Assets							
Public Sector Commercial Banks	6.1	8.7	12.6	12.2	13.7	12.8	12.9
Local Private Banks	5.3	6.5	7.0	9.2	10.2	9.8	9.8
Foreign Banks	9.9	8.9	9.5	10.1	11.2	10.5	13.3
Commercial Banks	**6.1**	**7.2**	**8.4**	**9.9**	**10.9**	**10.4**	**10.5**
Specialized Banks	(10.0)	(9.4)	(8.1)	(8.0)	(5.5)	0.4	(4.1)
All Banks	**5.5**	**6.7**	**7.9**	**9.4**	**10.5**	**10.2**	**10.2**
ASSET QUALITY							
NPLs to Total Loans							
Public Sector Commercial Banks	20.4	13.3	10.0	9.0	8.4	9.9	11.8
Local Private Banks	11.3	9.0	6.4	5.2	6.0	6.5	6.9
Foreign Banks	3.1	1.6	1.2	1.0	1.6	1.7	1.7
Commercial Banks	**13.7**	**9.0**	**6.7**	**5.7**	**6.3**	**7.0**	**7.6**
Specialized Banks	55.6	54.1	46.0	39.1	34.3	29.8	33.4
All Banks	**17.0**	**11.6**	**8.3**	**6.9**	**7.2**	**7.7**	**8.4**
Provision to NPLs							
Public Sector Commercial Banks	65.8	77.0	86.8	84.5	89.0	85.2	81.1
Local Private Banks	62.7	69.9	76.4	78.7	87.2	84.8	80.7
Foreign Banks	78.7	101.9	145.9	191.7	157.0	133.8	126.0
Commercial Banks	**64.8**	**72.4**	**80.4**	**81.5**	**88.2**	**85.2**	**81.1**
Specialized Banks	61.5	64.9	64.8	64.1	68.6	73.7	63.2
All Banks	**63.9**	**70.4**	**76.7**	**77.8**	**85.1**	**84.0**	**79.0**
Net NPLs to Net Loans							
Public Sector Commercial Banks	8.1	3.4	1.5	1.5	1.0	1.6	2.5
Local Private Banks	4.5	2.9	1.6	1.1	0.8	1.1	1.4
Foreign Banks	0.7	(0.0)	(0.6)	(1.0)	(0.9)	(0.6)	(0.5)
Commercial Banks	**5.3**	**2.7**	**1.4**	**1.1**	**0.8**	**1.1**	**1.5**
Specialized Banks	32.5	29.3	23.1	18.7	14.0	10.0	15.6
All Banks	**6.9**	**3.8**	**2.1**	**1.6**	**1.1**	**1.3**	**1.9**
Net NPLs to Capital							
Public Sector Commercial Banks	50.0	16.2	5.5	6.4	3.4	6.2	10.5
Local Private Banks	39.1	24.3	13.0	7.1	4.2	5.9	8.1
Foreign Banks	3.2	(0.2)	(3.0)	(5.1)	(4.1)	(2.6)	(1.4)
Commercial Banks	**36.9**	**19.0**	**9.0**	**6.2**	**3.7**	**5.6**	**8.2**
Specialized Banks	-	-	-	-	-	-	-
All Banks	**54.4**	**29.2**	**14.3**	**9.7**	**5.6**	**6.9**	**10.4**
EARNINGS							
Return on Assets (Before Tax)							
Public Sector Commercial Banks	1.8	2.4	3.3	4.0	3.6	2	1.5
Local Private Banks	2.2	1.7	2.7	3.1	2.0	2.4	2.2
Foreign Banks	2.6	2.5	3.6	3.2	1.5	2.3	1.1
Commercial Banks	**2.1**	**2.0**	**2.9**	**3.2**	**2.3**	**2.3**	**2.0**
Specialized Banks	(3.3)	(0.4)	(1.0)	(1.3)	1.4	3.6	1.8
All Banks	**1.8**	**1.9**	**2.8**	**3.1**	**2.2**	**2.3**	**2.0**
Return on Assets (After Tax)							
Public Sector Commercial Banks	1.0	1.3	2.2	2.7	2.5	1.2	1.2
Local Private Banks	1.4	1.2	1.8	2.1	1.4	1.8	1.5
Foreign Banks	1.5	2.0	2.5	2.1	0.7	1.1	0.3
Commercial Banks	**1.2**	**1.3**	**2.0**	**2.2**	**1.6**	**1.7**	**1.4**
Specialized Banks	(3.7)	(0.8)	(1.2)	(1.8)	0.7	3.6	1.1
All Banks	**1.0**	**1.2**	**1.9**	**2.1**	**1.5**	**1.7**	**1.4**

Annex-I

Financial Soundness Indicators of the Banking System

Indicators	2003	2004	2005	2006	2007	Jun-08	Sep-08
ROE (Avg. Equity & Surplus) (Before Tax)							
Public Sector Commercial Banks	29.9	30.8	30.7	32.4	27.2	14.6	11.8
Local Private Banks	41.5	28.8	40.1	36.2	20.4	23.6	22.2
Foreign Banks	25.0	26.7	38.9	30.0	13.5	21.5	9.9
Commercial Banks	**33.7**	**29.0**	**37.2**	**34.7**	**21.9**	**21.4**	**19.3**
Specialized Banks	-	-	-	-	-	-	-
All Banks	**35.4**	**30.5**	**38.2**	**35.2**	**22.6**	**22.4**	**19.8**
ROE (Avg. Equity & Surplus) (After Tax)							
Public Sector Commercial Banks	17.3	17.2	20.9	21.7	19.5	9.0	8.9
Local Private Banks	25.8	20.2	27.2	25.0	13.9	18.3	14.8
Foreign Banks	14.8	21.5	27.1	20.4	6.3	9.8	2.5
Commercial Banks	**20.3**	**19.6**	**25.4**	**23.7**	**15.0**	**15.8**	**12.9**
Specialized Banks	-	-	-	-	-	-	-
All Banks	**20.0**	**20.3**	**25.8**	**23.8**	**15.5**	**16.7**	**13.3**
NII/Gross Income				-			
Public Sector Commercial Banks	64.1	63.7	71.3	69.5	65.9	68.6	64.5
Local Private Banks	55.9	62.0	73.0	73.5	70.8	71.2	72.0
Foreign Banks	55.3	57.7	61.5	65.8	59.1	52.5	56.6
Commercial Banks	**58.9**	**61.9**	**71.3**	**72.1**	**69.3**	**69.7**	**69.8**
Specialized Banks	62.2	81.9	87.7	40.1	42.8	43.4	48.7
All Banks	**59.2**	**62.8**	**72.0**	**70.9**	**68.3**	**68.7**	**69.2**
Cost / Income Ratio							
Public Sector Commercial Banks	43.9	39.5	34.3	31.8	30.2	33.6	35.2
Local Private Banks	53.2	56.2	43.1	40.7	45.2	48.4	48.7
Foreign Banks	48.2	49.0	42.2	49.8	56.4	49.7	61.0
Commercial Banks	**49.0**	**51.7**	**41.2**	**39.4**	**42.6**	**45.6**	**46.7**
Specialized Banks	67.5	57.8	47.8	62.6	52.5	36.6	53.5
All Banks	**50.5**	**52.0**	**41.5**	**40.3**	**43.0**	**45.1**	**46.8**
LIQUIDITY							
Liquid Assets/Total Assets							
Public Sector Commercial Banks	49.1	43.9	35.6	33.9	37.5	32.3	27.6
Local Private Banks	42.9	34.3	32.4	31.1	32.5	31.5	28.2
Foreign Banks	49.2	39.8	41.8	41.0	41.5	37.6	43.6
Commercial Banks	**46.1**	**37.0**	**33.9**	**32.2**	**33.8**	**31.9**	**28.7**
Specialized Banks	22.9	25.3	25.8	23.0	25.9	21.0	21.2
All Banks	**45.1**	**36.6**	**33.7**	**31.9**	**33.6**	**31.6**	**28.6**
Liquid Assets/Total Deposits							
Public Sector Commercial Banks	59.0	52.6	44.7	42.6	47.7	40.7	36.0
Local Private Banks	54.5	42.3	40.3	40.6	42.8	40.7	37.2
Foreign Banks	68.9	53.4	57.9	61.1	61.0	54.6	71.4
Commercial Banks	**57.8**	**45.7**	**42.7**	**42.0**	**44.4**	**41.1**	**38.2**
Specialized Banks	135.0	154.1	183.2	205.4	229.6	203.5	217.1
All Banks	**58.5**	**46.5**	**43.5**	**42.7**	**45.1**	**41.6**	**38.7**
Advances/Deposits							
Public Sector Commercial Banks	45.7	49.7	59.8	64.6	60.0	63.7	71.6
Local Private Banks	58.2	67.3	70.8	74.5	70.1	69.4	75.2
Foreign Banks	63.8	70.1	68.7	80.1	75.2	66.5	69.8
Commercial Banks	**53.6**	**63.6**	**68.4**	**72.7**	**68.1**	**68.2**	**74.3**
Specialized Banks	379.1	370.5	400.7	528.4	507.2	559.9	638.4
All Banks	**56.4**	**65.8**	**70.2**	**74.6**	**69.8**	**69.8**	**76.0**

** For June and September quarters Risk Weighted CAR and Tier 1 Capital to RWA of One PSCB and two SBs are based on Basel-I reporting formats, all other banks have reported on Basle II. These three banks hold 0.6 percent of the banking systems assets*

Note: The indicators for June 2008 and September 2008 are based on Un-audited returns.

Annex-II

Selected Indicators for Different Categories of Banks in terms of Size-Sep-08

Indicators	Top 5 Banks	Top 10 Banks	Top 20 Banks	Industry
Share of Total Assets	51.3%	73.1%	92.6%	100%
Share of Total Deposits	53.6%	76.1%	93.7%	100%
Share of Gross Income	55.7%	75.7%	94.7%	100%
Share of Risk Weighted Assets	51.4%	72.8%	92.6%	100%
Capital Adequacy				
Capital/RWA	13.0%	11.7%	11.5%	11.8%
Tier 1 Capital / RWA	10.3%	9.4%	9.2%	9.6%
Net Worth / Total Assets	9.3%	8.7%	8.8%	9.0%
Asset Composition				
Sectoral Distribution of Loans (Domestic)				
- Corporate Sector	48.9%	73.1%	92.8%	100%
- SMEs	39.6%	63.0%	88.9%	100%
- Agriculture	32.8%	43.7%	94.6%	100%
- Consumer Finance	44.9%	72.4%	94.8%	100%
- Commodity Financing	75.1%	93.1%	98.5%	100%
- Staff Loans	61.2%	74.3%	91.4%	100%
- Others	9.0%	71.5%	77.1%	100%
- **Total**	**48.2%**	**71.5%**	**92.9%**	**100%**
NPLs / Gross Loans	8.3%	7.9%	8.2%	8.4%
Net NPLs / Capital	8.7%	9.1%	10.8%	10.4%
Earning & Profitability				
ROA	1.7%	1.3%	1.1%	1.0%
ROE	16.0%	12.7%	10.7%	9.9%
Net Interest Income / Gross Income	74.2%	71.2%	69.4%	69.2%
Income from Trading & Foreign Exchange / Gross Income	16.9%	18.6%	18.9%	19.2%
Non-Interest Expense / Gross Income	38.3%	41.6%	44.5%	46.8%
Liquidity				
Liquid Assets / Total Assets	29.8%	28.6%	28.4%	28.7%
Liquid Assets held in Govt. Securities / Total Liquid Assets	46.8%	47.2%	47.0%	45.5%
Liquid Assets / Total Deposits	38.6%	37.3%	38.0%	38.9%

Annex-III

Bank-wise Major Statistics September 30, 2008

(Rupees In Million)

S. No.	Name of the Banks	Assets	Deposits	Equity
1	The Bank of Khyber	33,674	23,646	5,534
2	The Bank of Punjab	205,173	163,441	10,944
3	First Women Bank Limited	8,632	6,750	1,094
4	National Bank of Pakistan	737,976	561,499	109,819
5	Industrial Development Bank of Pakistan	6,598	4,410	(28,462)
6	Zarai Taraqiati Bank Limited	97,450	4,218	15,986
7	The Punjab Provincial Cooperative Bank Limited	14,561	1,736	4,662
8	SME Bank Limited	6,546	1,853	2,623
9	Allied Bank Limited	333,919	279,316	21,386
10	Bank Alfalah Limited	333,234	280,718	17,468
11	Bank Al Habib Limited	171,774	136,867	10,922
12	Askari Bank Limited	202,923	161,108	11,297
13	Crescent Commercial Bank Limited	18,011	9,287	5,847
14	Atlas Bank Limited	34,591	23,726	4,517
15	Habib Bank Limited	697,821	558,741	65,664
16	Faysal Bank Limited	135,407	92,511	12,555
17	KASB Bank Limited	57,519	47,029	4,480
18	Dubai Islamic Bank Pakistan Limited	28,209	22,953	4,151
19	JS Bank Limited	21,881	14,700	4,934
20	Bank Islami Pakistan Limited	17,231	11,242	4,248
21	Arif Habib Bank Limited	28,099	18,622	6,462
22	Emirates Global Islamic Bank	15,370	8,742	4,233
23	Dawood Islamic Bank	10,217	4,948	4,115
24	The Royal Bank of Scotland Ltd	112,439	86,724	6,612
25	MCB Bank Limited	453,565	323,968	56,516
26	Meezan Bank Limited.	76,422	61,392	6,151
27	Habib Metropolitan Bank Limited	186,826	128,314	14,582
28	Mybank Limited	43,368	30,308	6,154
29	NIB Bank Limited	180,364	114,326	35,655
30	Saudi Pak Commercial Bank Limited	53,687	42,852	3,918
31	Soneri Bank Limited	83,242	62,583	6,987
32	United Bank Limited	600,704	455,369	45,754
33	Standard Chartered Bank (Pakistan) Limited	272,034	180,073	44,390
34	Oman International Bank	3,497	476	2,668
35	HSBC Bank Middle East Ltd	52,907	38,273	4,975
36	Deutsche Bank AG	17,172	7,197	4,734
37	The Bank of Tokyo-Mitsubishi UFJ Limited	9,673	1,369	3,365
38	Citibank N.A.	107,621	68,637	6,032
39	Albaraka Islamic Bank B.S.C. (E.C.)	21,726	16,968	2,142
40	Barclays Bank PLC	16,709	7,060	6,671

Annex-IV

Group-wise Composition of Banks Sept 30, 2008

2005	2006	2007	Jun-08	Sep-08
A. Public Sector Com. Banks (4)	**A. Public Sector Com. Banks (4)**	**A. Public Sector Com. Banks (4)**	**A. Public Sector Com. Banks (4)**	**A. Public Sector Com. Banks (4)**
National Bank of Pakistan	National Bank of Pakistan	National Bank of Pakistan	National Bank of Pakistan	National Bank of Pakistan
First Women Bank Ltd.	First Women Bank Ltd.	First Women Bank Ltd.	First Women Bank Ltd.	First Women Bank Ltd.
The Bank of Khyber	The Bank of Khyber	The Bank of Khyber	The Bank of Khyber	The Bank of Khyber
The Bank of Punjab	The Bank of Punjab	The Bank of Punjab	The Bank of Punjab	The Bank of Punjab
B. Local Private Banks (20)	**B. Local Private Banks (24)**	**B. Local Private Banks (26)**	**B. Local Private Banks (25)**	**B. Local Private Banks (25)**
Askari Commercial Bank Ltd.	Askari Commercial Bank Ltd.	Askari Bank Ltd.	Askari Bank Ltd.	Askari Bank Ltd.
Bank Al-Falah Ltd.	Bank Alfalah Ltd.	Bank Alfalah Ltd.	Bank Alfalah Ltd.	Bank Alfalah Ltd.
Bank Al Habib Ltd.	Bank AL Habib Ltd.	Bank AL Habib Ltd.	Bank AL Habib Ltd.	Bank AL Habib Ltd.
My Bank Ltd.	Mybank Ltd.	Mybank Ltd.	Mybank Ltd.	Mybank Ltd.
Faysal Bank Ltd.	Faysal Bank Ltd.	Faysal Bank Ltd.	Faysal Bank Ltd.	Faysal Bank Ltd.
Metropolitan Bank Ltd.	Habib Metropolitan Bank Ltd.	Habib Metropolitan Bank Ltd.	Habib Metropolitan Bank Ltd.	Habib Metropolitan Bank Ltd.
KASB Bank Ltd.	KASB Bank Ltd.	KASB Bank Ltd.	KASB Bank Ltd.	KASB Bank Ltd.
Prime Commercial Bank Ltd.	Prime Commercial Bank Ltd.	ABN AMRO Bank (Pakistan) Ltd 1	ABN AMRO Bank (Pakistan) Ltd 1	The Royal Bank of Scotland Ltd.
Saudi Pak Commercial Bank Ltd	Saudi Pak Commercial Bank Ltd	Saudi Pak Commercial Bank Ltd	Saudi Pak Commercial Bank Ltd	Saudi Pak Commercial Bank Ltd
PICIC Commercial Bank Ltd.	PICIC Commercial Bank Ltd.	PICIC Commercial Bank Ltd.	Soneri Bank Ltd.	Soneri Bank Ltd.
Soneri Bank Ltd.	Soneri Bank Ltd.	Soneri Bank Ltd.	Standard Chartered Bank (Pakistan) Ltd.	Standard Chartered Bank (Pakistan) Ltd.
Union Bank Ltd.	Standard Chartered Bank (Pakistan) Ltd.	Standard Chartered Bank (Pakistan) Ltd.	MCB Bank Ltd.	MCB Bank Ltd.
MCB Bank Ltd.	MCB Bank Ltd.	MCB Bank Ltd.	Allied Bank Ltd.	Allied Bank Ltd.
Allied Bank Ltd..	Allied Bank Ltd.	Allied Bank Ltd.	United Bank Ltd.	United Bank Ltd.
United Bank Ltd.	United Bank Ltd.	United Bank Ltd.	Meezan Bank Ltd.	Meezan Bank Ltd.
Meezan Bank Ltd.	Meezan Bank Ltd.	Meezan Bank Ltd.	NIB Bank Ltd.	NIB Bank Ltd.
NIB Bank Ltd.	NIB Bank Ltd.	NIB Bank Ltd.	Crescent Commercial Bank Ltd.2	Crescent Commercial Bank Ltd.*
Crescent Commercial Bank Ltd.	Crescent Commercial Bank Ltd.	Crescent Commercial Bank Ltd.	Habib Bank Ltd.	Habib Bank Ltd.
Habib Bank Ltd	Habib Bank Ltd.	Habib Bank Ltd.	Atlas Bank Ltd..	Atlas Bank Ltd..
Dawood Bank Ltd.	Atlas Bank Ltd..	Atlas Bank Ltd..	Arif Habib Bank Ltd.	Arif Habib Bank Ltd.
C. Foreign Banks (11)	Arif Habib Rupali Bank Ltd.	Arif Habib Bank Ltd.	Dubai Islamic Bank Pakistan Ltd.	Dubai Islamic Bank Pakistan Ltd.
ABN AMRO Bank N.V.	Dubai Islamic Bank Pakistan Ltd.	Dubai Islamic Bank Pakistan Ltd.	BankIslami Pakistan Ltd.	BankIslami Pakistan Ltd.
Albaraka Islamic Bank B.S.C.	BankIslami Pakistan Ltd.	BankIslami Pakistan Ltd.	JS Bank Ltd.	JS Bank Ltd.
American Express Bank Ltd 7.	JS Bank Ltd.	JS Bank Ltd.	Emirates Global Islamic Bank Ltd.	Emirates Global Islamic Bank Ltd.
The Bank of Tokyo – Mitsubishi.	**C. Foreign Banks (7)**	Emirates Global Islamic Bank Ltd.	Dawood Islamic Bank Ltd	Dawood Islamic Bank Ltd
Citibank N.A.	ABN AMRO Bank N.V.	Dawood Islamic Bank Ltd		
Deutsche Bank AG	Albaraka Islamic Bank B.S.C.	**C. Foreign Banks (6)**	**C. Foreign Banks (6)**	**C. Foreign Banks (7)**
Habib Bank AG Zurich	Bank of Tokyo - Mitsubishi UFJ, Ltd.	Albaraka Islamic Bank B.S.C.	Albaraka Islamic Bank B.S.C.	Albaraka Islamic Bank B.S.C.
Oman International Bank S.A.O.G.	Citibank N.A.	Bank of Tokyo - Mitsubishi UFJ, Ltd.	Bank of Tokyo - Mitsubishi UFJ, Ltd.	Bank of Tokyo - Mitsubishi UFJ, Ltd.
The Hongkong & Shanghai Banking Corporation Ltd.	The Hongkong & Shanghai Banking Corporation Ltd.	The Hongkong & Shanghai Banking Corporation Ltd.	HSBC Bank Milldle East Limited	HSBC Bank Milldle East Limited
Rupali Bank Ltd.	Deutsche Bank AG	Deutsche Bank AG	Deutsche Bank AG	Deutsche Bank AG
Standard Chartered Bank	Oman International Bank S.A.O.G.	Citibank N.A.	Citibank N.A.	Citibank N.A.
D. Specialized Banks (4)	**D. Specialized Banks (4)**	Oman International Bank S.A.O.G.	Oman International Bank S.A.O.G.	Oman International Bank S.A.O.G.
				Barclays Bank PLC**
Zarai Taraqiati Bank Ltd.	Zarai Taraqiati Bank Ltd.	**D. Specialized Banks (4)**	**D. Specialized Banks (4)**	**D. Specialized Banks (4)**
Industrial Development Bank of Pakistan	Industrial Development Bank of Pakistan	Zarai Taraqiati Bank Ltd.	Zarai Taraqiati Bank Ltd.	Zarai Taraqiati Bank Ltd.
Punjab Provincial Co-operative Bank Ltd.	Punjab Provincial Co-operative Bank Ltd.	Industrial Development Bank of Pakistan	Industrial Development Bank of Pakistan	Industrial Development Bank of Pakistan
SME Bank Ltd	SME Bank Ltd.	Punjab Provincial Co-operative Bank Ltd.	Punjab Provincial Co-operative Bank Ltd.	Punjab Provincial Co-operative Bank Ltd.
Commercial Banks (35)	**All Commercial Banks (35)**	SME Bank Ltd.	SME Bank Ltd.	SME Bank Ltd.
Include A + B + C	Include A + B + C	**All Commercial Banks (36)**	**All Commercial Banks (35)**	**All Commercial Banks (36)**
All Banks (39)	**All Banks (39)**	Include A + B + C	Include A + B + C	Include A + B + C
Include A + B + C + D	Include A + B + C + D	**All Banks (40)**	**All Banks (39)**	**All Banks (40)**
		Include A + B + C + D	Include A + B + C + D	Include A + B + C + D

* The name of Crescent Commercial Bank Ltd was changed to Samba Bank Ltd w.e.f October 20, 2008.

** Barclays Bank PLC was declared as a scheduled bank w.e.f July 23, 2008.