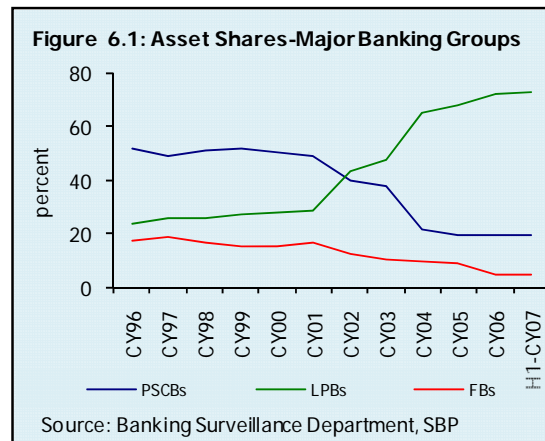


6 STABILITY OF THE BANKING SYSTEM

6.1 Overview

As the predominant source of financing, the banking sector in Pakistan continued to support the financing needs of a burgeoning economy.¹ Loans of the banking system grew at a more sustainable level of 20 percent during CY06 as compared to an annual average growth of over 30 percent in the last two years. Quality of the loan portfolio in recent years has been influenced by several positive economic developments, the foremost among which is real GDP growth which has averaged at 7.0 percent over the last 5 years. From the perspective of the banking sector, strong economic growth has not only kept the demand for loans high, but has also strengthened the repayment capacity of the borrowers. Traditional indicators of asset quality (including non-performing loans (NPLs) to loans ratio and net NPLs to net loans ratio) have improved significantly in recent years, especially in CY06. In a way, these indicators tend to slightly overstate the quality of assets due to the expanding loan portfolio which has increased by over 100 percent in just the last three years, as also indicated by the slight weakness in asset quality in the data for H1-CY07. However, such concerns are adequately addressed by the accompanying increased risk-absorption capacity of the banking sector, given that the capital adequacy ratio has reached 13.3 percent by H1-CY07.

A prominent development in recent years is the shift in the ownership structure of the banking sector. As a result, local private banks have emerged as the leading player with an asset share of 72.9 percent in the banking system. In terms of assets, both public sector banks and foreign banks are losing their market share to local private banks (Figure 6.1). However, the declining asset share of foreign banks should not be viewed as a negative development. In fact, foreign direct investment in the banking sector is on the rise with foreign shareholding at 43.4 percent as of end CY06. Additionally, most of the foreign banks operating previously as branches of their parent office are now operating as locally incorporated subsidiaries.



Declining, but still high, concentration in the banking sector suggests that the stability of the industry primarily depends on few large banks with a dominant share of asset and deposits. Specifically, ten largest banks hold 74.2 percent of total banking sector assets and 77.8 percent of total deposits of the banking sector as of end June 2007.

In terms of financial soundness indicators, CY06 was the third consecutive year of strong financial performance of the banking industry. A 17 percent YoY increase in assets pushed the overall size of the banking sector to Rs 4.3 trillion by end CY06 (which further increased to Rs 5.0 trillion by H1-CY07). Asset expansion during the year was funded by an over 13 percent increase in deposits, strong growth in equity, and relatively higher borrowing. Healthy economic growth alongwith all-time high inflows of workers' remittances were the key factors responsible for the strong growth in deposits. On the other hand, increased minimum capital requirements have contributed to the strong growth in equity, as 55 percent of the increase in equity is due to the higher paid up capital.

¹ Analysis of the banking sector is based on audited accounts prepared on a calendar year basis, while the data for first half of 2007 (H1-CY07) is based on un-audited Quarterly Report of Condition for the 1st and 2nd quarters of the year.

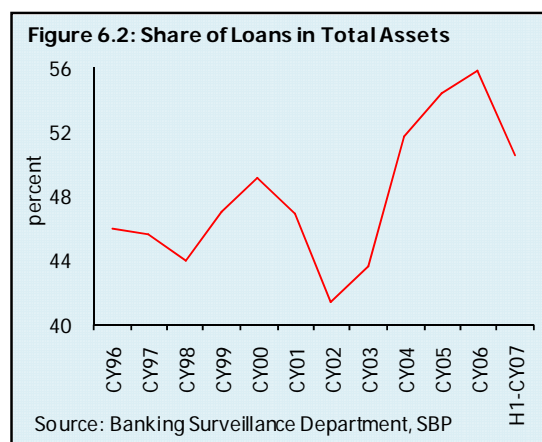
These developments in the assets and funding structure of the banking sector have helped banks in realizing even higher² profits of Rs 123.6 billion in CY06, resulting in an after tax return on assets (RoA) of 2.1 percent. After tax return on equity (RoE) was around 25 percent: a level significantly higher than other countries in the region. Notably, this trend continued during H1-CY07 also.

In view of these developments, this chapter is focused on the evaluation of financial performance and stability of the banking sector by using a wide range of analytical tools. These include quantitative indicators of financial soundness, supplemented with stress testing exercises. Financial soundness indicators provide partial³ information about the overall performance of the banking system, particularly if some of them are not seen to be moving in tandem with each other. To address this issue, a Financial Soundness Index (FSI) has been devised, comprising of key financial soundness indicators. Finally, quantitative results of the stress testing exercise are also supplemented by the analysis of qualitative factors in section 6.5.

6.2 Financial Soundness Indicators

6.2.1 Quality of Credit Portfolio

Asset quality indicators are directly associated with potential risks to the solvency of the banking sector. The potential credit risk has increased in recent years as the advances of the banking sector have more than doubled in the past three years (including an increase of 20 percent during CY06). As a consequence, the share of loans in the overall assets of the banking sector reached 55.8 percent in CY06, the highest level during the last 10 years, before declining to 50.5 percent during H1-CY07 (Figure 6.2).



Sectoral diversification of the loan portfolio indicates that the corporate sector continues to have a dominant share in bank credit, at over 50 percent of total loans (Table 6.1). Temporal growth in consumer financing over the last two year indicates that the YoY growth has declined to 28.6 percent in CY06 as compared to 65.7 percent in CY05 (an upshot of both the base-effect and aggressive lending). On account of the ongoing monetary tightening, growth in loans, especially in consumer financing, is expected to moderate from the relatively higher level of previous years. In particular, a 9.0 percent increase in consumer financing during H1-CY07 in comparison with 17.3 percent in H1-CY06 is an indication of the deceleration in consumer loan growth during CY07.

Table 6.1: Sectoral Diversification of Loans

	Percent Share in Total Loans			
	CY04	CY05	CY06	H1-CY07
Corporate Sector	53.9	52.7	52.9	54.2
SMEs	17.5	17.7	17.4	15.4
Agriculture	7.4	6.8	5.9	5.8
Consumer Finance	9.4	12.4	13.5	14.3
Commodity Financing	7.5	6.9	7.2	6.8
Staff Loans	2.5	2.1	2.0	2.0
Others	1.8	1.5	1.1	1.4

Source: Banking Surveillance Department, SBP

The above developments in the diversification of the loan portfolio are inextricably linked with the credit exposure of the banking sector. Gradual diversification of sectoral exposure is a positive development from the point of view of stability, as the underlying risks factors for each sector are not perfectly correlated.

² Profitability up-trend started from CY02.

³ The word 'partial' is used where a given indicator does not fully explain the underlying characteristics.

Another critical approach to assessing the potential exposure of the banking sector is by the distribution of loans by securities pledged. **Table 6.2** indicates a considerable change in the overall quality of collateral held by the banking sector against the outstanding loans. Specifically, the share of 'Others' has surged to 34.0 percent by end H1-CY07 in comparison with less than 24.1 percent in CY03. While a further break up of this category provides a

Table 6.2: Distribution of Loans by Securities Pledged

percent shares	CY03	CY04	CY05	CY06	H1-CY07
Merchandise	31.1	30.6	28.9	28.2	29.0
Financial Instruments	6.7	6.7	3.6	5.1	4.1
Fixed Assets	12.5	12.6	14.0	11.9	11.0
Real Estate	23.5	20.3	24.0	20.4	19.4
Deposits and Insurance Policy	2.0	1.9	2.6	2.2	2.0
Others: <i>Of Which</i>	24.1	27.8	26.9	32.0	34.0
Secured Loans	16.9	17.9	15.9	19.5	23.6
Secured by Guarantee	5.4	6.6	7.0	8.2	5.3
Unsecured Loans	1.8	3.2	4.0	4.3	5.2
Gold, Bullion etc.,	0.1	0.0	0.0	0.3	0.5

Source: Statistical Bulletin, SBP

certain degree of comfort given that a 6.7 percentage point increase in share emanates from secured loans, the increased share of unsecured loans, though still small at 5.2 percent, can have potentially negative implications for the loan portfolio of the banking sector. Another notable feature is the share of loans collateralized by fixed assets and real estate. Although banks' overall exposure in terms of loans collateralized by these securities has declined in CY06 which is a

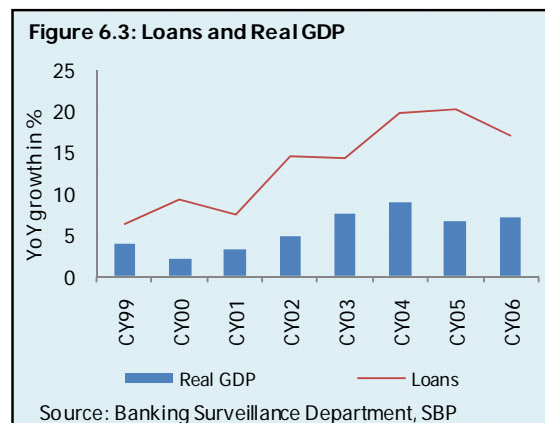
positive development, the underlying concern relates to the inflated price level of real estate, and strong credit growth over the past two years. Specifically, the volume of loans backed by fixed assets and real estate has doubled since December CY03 and constitutes over 30 percent of the loan portfolio. In the absence of a centralized source of information on real estate prices it is difficult to make an assertion with any degree of confidence, however any abnormal downward movement (normal decline in prices should be covered through margins) in real estate prices has the potential to impact this particular category of banks' loan portfolio.

Viewed from another angle, the distribution of loans by size indicates that the share of small loans (upto Rs 5 million) in total loans has increased significantly (**Table 6.3**). This is largely perceived to be the outcome of banks' credit exposure towards the household sector (consumer loans). However, it may be noted that the share of these loans has declined in CY06. In line with the sectoral distribution of loans where the corporate sector has a share in excess of 50 percent, banks' exposure to large-sized loans constitutes over 64 percent of the loan portfolio.

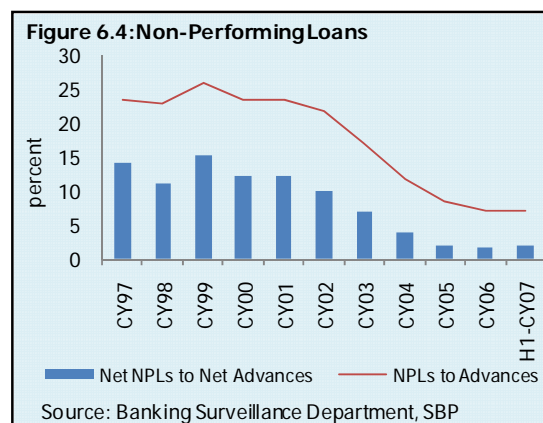
Table 6.3: Distribution of Loans by Size

percent share	CY03	CY04	CY05	CY06	H1-CY07
Rs million					
Up to 0.1	9.3	7.9	7.5	7.1	7.0
0.1 to 0.5	7.9	8.5	10.2	10.7	11.1
0.5 to 1.0	2.8	3.3	3.6	3.0	3.0
1.0 to 5.0	7.0	7.7	12.9	9.8	9.7
5.0 to 10.0	4.6	5.0	5.5	4.7	4.7
Over 10	68.5	67.7	60.3	64.7	64.5

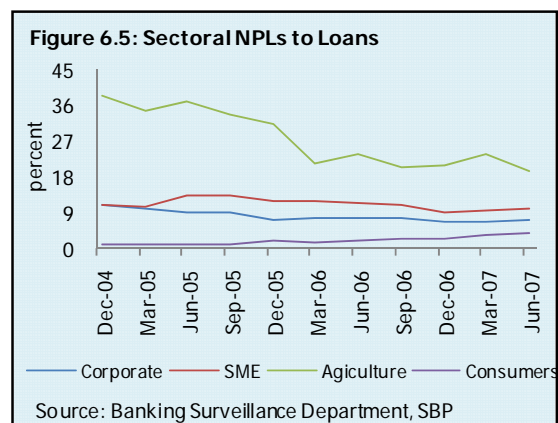
Source: Statistical Bulletin, SBP



Strong growth alongwith gradual shift in the distribution of loans in various sectors has strong links with developments in the real sector of the economy. In fact, growth in both loans and real economic activities are mutually conditional (**Figure 6.3**). Strong real GDP growth creates demand for loans on one hand, and improves the ability of borrowers to meet their obligations on the other hand. This in turn helps in reducing the share of non-performing loans (NPLs) in total loans. This is clearly visible from **Figure 6.4**. Specifically, non-performing loans of the banking sector declined further by Rs 1.8 billion during CY06 to reach Rs 175.5 billion before recording an increase of Rs 12.0 billion during H1-CY07 to reach Rs 187.0 billion (net). A notable point is that over 76 percent of these NPLs are provided for. As a result, the net NPLs to net advances ratio dipped to an all-time low level of 1.6 percent by end CY06 before recording a reversal in trend to reach 1.8 percent by end H1-CY07. Likewise, the risk of erosion of capital emanating from the NPLs' portfolio is also low. Specifically, the net NPLs to capital ratio has improved to a single digit number (9.7 percent) by end CY06, compared to 14.1 percent in CY05. However, recent data for H1-CY07 indicates a slight increase in these ratios (more on this issue later).



Sectoral break up of NPLs indicates that financing extended to the agriculture sector is relatively riskier for banks, though the NPLs to loans ratio for the sector shows a decreasing pattern over the last few years. This is not entirely surprising, because besides the vagaries of nature, agriculture and rural finance is a relatively new area for most of the banks and their credit risk assessment procedures are gradually gaining strength with the benefit of experience. Despite significant deceleration in recent years, the NPLs to loans ratio is still high at 19.3 percent in H1-CY07 (**Figure 6.5**). In so far as other sectors are concerned, the NPLs to advances ratio of the SME sector is slightly more than that of the corporate sector, and follows a similarly declining trend. Incidentally, consumer loans have the lowest infection level as shown in **Figure 6.5**.

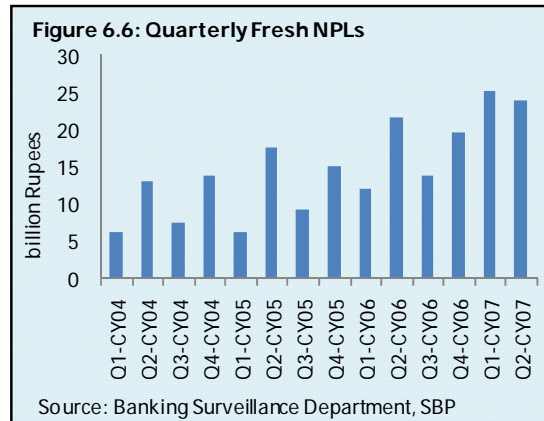


While these NPL-based indicators of asset quality show significant improvements during CY06, their importance should be discounted for periods of high credit growth, as has been the case in the last few years. This is because an expanding loan portfolio may lead to an overstatement of asset quality by suppressing the NPLs to advances ratios. Moreover, the stock position of NPLs conceals important changes in NPL flows during the year, due to which it would be instructive to analyze these flows in more detail.

Changes in the level of NPLs indicates that the banking sector has written-off NPLs worth Rs 42.5 billion during CY06, compared to Rs 17.1 billion during CY05. Moreover, there has been an inflow of Rs 66.9 billion during the year, which is Rs 18.9 billion higher in comparison with the previous year. While the amount of written-off loans along with the recovered amount of NPLs helped banks in reducing the overall level of NPLs, a significant inflow of fresh NPLs is a cause for concern. These concerns are further augmented by the NPLs data for H1-CY07,

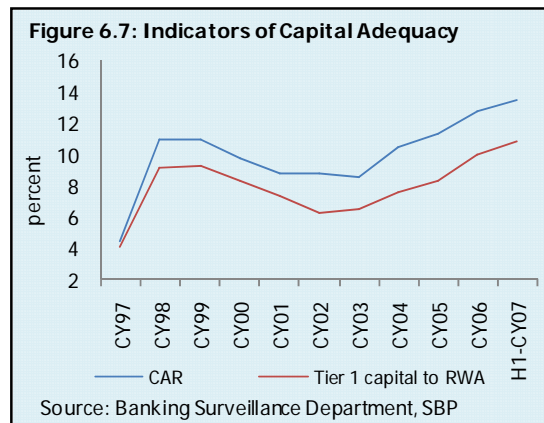
which indicates fresh inflow of NPLs of Rs 49.0 billion in the first six months of CY07 – the highest level since CY04 (Figure 6.6).

To conclude, while the traditional indicators of asset quality including NPLs to loans, provisions to NPLs etc. indicate significant improvements during CY06, with a slight weakening in H1-CY07, the analysis of changes in NPLs highlights the underlying risks. This suggests that aggressive lending over the last three years might slightly impair the asset quality of the banking sector in the years to come, and requires close vigilance of traditional and non-traditional indicators of asset quality.

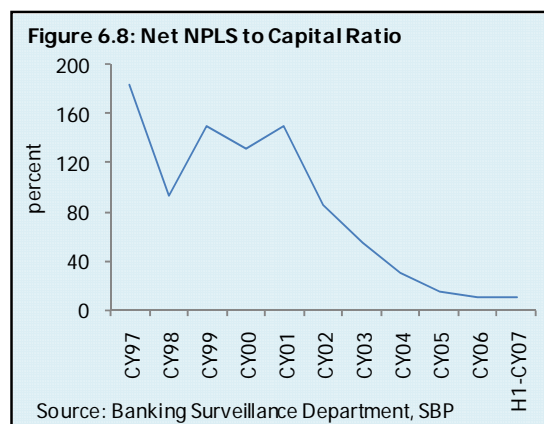


6.2.2 Capital Adequacy

Capital adequacy is one of the key indicators for measuring the resilience of the banking sector to unexpected shocks, as it reflects its ability to absorb sudden losses. A quick view of Figure 6.7 indicates that the capital adequacy ratio (capital to risk weighted assets) has reached 13.3 percent by end H1-CY07, compared to 11.3 percent in CY05. Notably, this rise in CAR came in the presence of increase in the share of the risk-weighted assets to total asset ratio during CY06. This implies that the risk-based capital has increased at a faster rate than the increase in risk weighted assets. The quality of the risk-based capital provides further comfort as the share of core capital in the overall risk-based capital has reached 80.3 percent by end H1-CY07, compared to 73.7 percent in CY05. These changes in the capital adequacy ratio together with the improved quality of capital suggest that the resilience of the banking sector to withstand unexpected shocks has strengthened during CY06.



Another important indicator is the Net NPLs to capital ratio, which highlights potential threats to the solvency of the banking sector. This ratio has sharply declined to 9.7 percent by end CY06 as compared to over 50 percent in CY03 (see Figure 6.8). Both the decreasing stock of NPLs and increasing level of the capital of the banking sector have contributed in improving this indicator. Although this ratio has increased slightly during H1-CY07 to reach 10.3 percent, it still does not pose any significant threat to the solvency of the banking sector. In sum, significant improvement in capital adequacy indicators in the presence of an increase in risk weighted assets bodes well for the stability of the banking sector.



6.2.3 Earnings and Profitability

Profitability indicators reflect the ability of the banking sector to absorb losses without impairing the capital base. In absolute terms, banks' after tax profit has surged to yet another all time high level of Rs 84.1 billion during CY06, compared to Rs 63.3 billion in CY05. This sharp increase in profits is also evident from the after tax RoA that reached 2.1 percent during CY06: a level significantly higher than the international norms of around 1.0 percent (**Table 6.4**). More importantly, this profitability is shared by a large number of banks. Distribution of the ROA indicates that 19 out of 39 banks controlling 76.6 percent of total assets have RoA in excess of 1.5 percent. These favorable trends in profitability continued to prevail during H1-CY07 as the ROA for the first half of CY07 is 2.0 percent.

Table 6.4: Return on Assets

percent	CY01	CY02	CY03	CY04	CY05	CY06
Pakistan	-0.5	0.1	1.0	1.2	1.9	2.1
Bangladesh	0.7	0.5	0.5	0.7	0.8	N.A.
India*	0.5	0.8	1.0	1.2	0.9	N.A.
Korea	0.7	0.6	0.2	0.9	1.2	1.3
Singapore	1.0	0.8	1.1	1.3	1.2	1.2
Thailand	1.5	0.2	0.7	1.3	1.5	1.5
Sri Lanka	0.7	1.1	1.4	1.4	1.3	N.A.

Source: Global Financial Stability Reports, IMF

* ROA before tax

The impressive profitability of the banking sector has also played an important role in curtailing its NPLs. As discussed above, the banking sector has written-off a significant amount of NPLs during CY06. While this huge amount of write-offs helped banks in cleaning up their balance sheets, it also led to a slight over statement of asset quality indicators, as also discussed earlier.

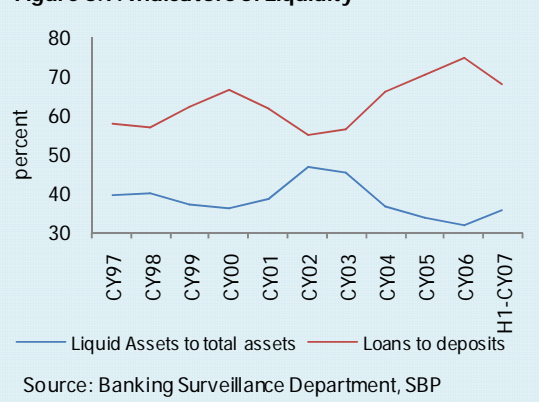
An important point to note here is that the profitability of the banking sector has had a significant contribution from increasing interest rate spreads over the past three years. This issue has generated considerable debate among stakeholders and analysts in the recent past regarding the efficiency of the banking sector. For a detailed discussion of this issue, please see the thematic article on "*Efficiency of financial intermediation – Analysis of Banking Spreads*", in Part I of this report.

6.2.4 Liquidity Indicators

Liquidity indicators reflect the resilience of banks to absorb cash flow shocks.

Figure 6.9 shows that the share of liquid assets in total assets had declined to 31.9 percent by end CY06, before increasing to 35.8 percent in H1-CY07, in comparison with 33.7 percent a year ago. Concurrently, another important indicator i.e. the loans to deposit ratio which increased from 66.5 percent in CY05 to 70.3 percent in CY06, has improved to 67.8 percent in H1-CY07. Both indicators depict a deterioration of the liquidity position as compared to past trends (observed over the last ten years) during CY06. The loans to deposits ratio is still considerably high despite an increase in the cash reserve requirement and the statutory reserve requirements (which together constitute around 24 percent of the demand and time liabilities).⁴ Although the share of loans in total banking sector assets also reached 55.8 percent during CY06 - the highest ever level during the last ten years, the figure itself does not seem to be high, specially given a small share of operating fixed assets at 2.1 percent, which shows that the remaining share of assets has a high proportion of investments and other such assets. Importantly, banks' loan portfolio has

Figure 6.9: Indicators of Liquidity



⁴ At present, scheduled bank are required to hold 7 percent of demand liabilities (including time deposits of up to one year maturity) as cash reserve requirements, and 18 percent of demand and time liabilities as statutory reserve requirement.

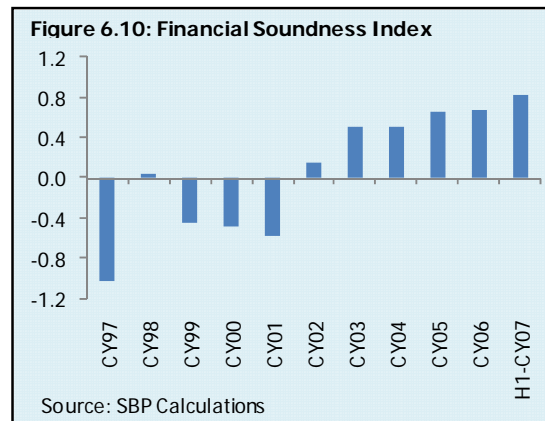
witnessed visible changes during H1-CY07, as the share of investments in overall assets has reached 23.8 percent compared to 22.0 percent as of end CY06. These developments have served to improve the liquidity indicators during H1-CY07.

In summary, the liquidity position of the banking sector is deemed to be satisfactory despite the deterioration in traditional liquidity indicators i.e. liquid asset to total assets and loans to deposit ratio. Increasing workers' remittances, strengthening equity base (on account of enhanced minimum capital requirements) and strong economic activities are likely to keep adequate inflows available to the banking sector.

6.3 Financial Soundness Index (FSI)

Partial indicators of financial soundness suggest that capital adequacy and profitability of the banking sector strengthened during CY06 and remained intact during H1-CY07. However, the asset quality indicators recorded significant improvement during CY06 before witnessing some weakening in H1-CY07. On the other hand, liquidity indicators which had deteriorated during CY06, improved significantly during H1-CY07. Given these conflicting trends of financial soundness indicators, it is difficult to make a clear statement about the financial health of the banking sector based on the above analysis. This problem is usually faced by central banks around the globe. In order to address such issues appropriately, some of the central banks have attempted to construct a single indicator or index to gauge the financial soundness of banks. While this is a daunting task due to the complex nature of the modern banking organizations, we have also constructed a simple Financial Soundness Index (FSI) of the banking sector as a step in this direction (**Box 6.1**).

The FSI indicates that the performance of the banking sector has improved substantially over the last five years (**Figure 6.10**). Marginal improvement for CY06 is also visible from the figure, as for H1-CY07. The previous values of the index suggest that it captures episodes of strong and poor performances of the banking sector as well. Specifically, deteriorating performance of the banking sector in the late 1990s is clearly visible from the graph. Despite these facts, its usefulness as an early warning tool is yet to be fully determined. It can still however be concluded that financial soundness of the banking sector has improved during CY06 and H1-CY07 despite adverse movement in some indicators.



6.4 Stress Testing

While an FSI provides useful information about the financial condition of the banking sector, concerns related to the response of the banking sector to sudden shocks still remain partially unattended. This is particularly true for the FSI constructed for the Pakistan banking sector as it is based on a few basic indicators. Also, there is hardly any information related to governance issues that can be included in the FSI.⁵ To overcome these constraints, the FSI framework is generally supplemented by results of a stress testing exercise (a partial sensitivity analysis).⁶

⁵ The FSI is constructed by using available information. We intend to refine this indicator by including information related to foreign exchange risks, contagion risks, interest rate risks etc. This is the first step in constructing a stress-index of the banking sector in Pakistan.

⁶ Some central banks have also developed a Stress Index to analyze the stability of the banking sector. Examples are Stress Index for the Swiss Banking Sector, Index of Financial Stress for Canada, Financial Strength in Turkey, etc.

Box 6.1: Methodology of Financial Soundness Index

Regulators and supervisors of the banking sector confront ongoing concerns regarding the financial condition of the banking sector. This issue is usually addressed by using BIS CAMELS methodology; IMF Financial Soundness Indicators (FSIs), Macro Prudential Indicators (MPIs) of the European Central Bank or some combination based on these methodologies. This implies that a wide range of partial indicators are used to assess the condition of the banking sector. The idea of the construction of an aggregate Index to assess the condition of financial health of banks is a recent development, and it continues to evolve over time.

In this backdrop, we have attempted to construct a Financial Soundness Index for the banking sector of Pakistan. To construct an aggregate index we use indicators of capital adequacy, asset quality, profitability and liquidity. These indicators are regularly calculated to assess the financial health of banking sector under CAMELS framework (see **Table 1**). The most crucial issue in constructing an aggregate index is the weighting scheme. Following literature on the subject, we have used the widely employed variance-equal weight scheme. In other words, all selected indicators are normalized by using the following formula to achieve unit variance in the series.

$$\text{Normalized Value of Indicator } i = (X_{i,t} - \bar{X}_i) / \sigma_i$$

Where $X_{i,t}$ is the value of indicator i in time period t , \bar{X}_i is the average of indicator X_i ; and σ_i is its standard deviation. The resulting normalized series are used to calculate an aggregate index by assigning equal weight of 0.25 to all four categories of indicators.

Table 1: Indicators of Financial Soundness Index

Indicator	Variable	Impact	Adjustment	Weight
Capital Adequacy	Capital to Risk Weighted Assets Ratio	Positive	Normalization	0.125
	Net NPLs to Capital Ratio	Negative	Normalization	0.125
Asset Quality	NPLs to Advances Ratio	Negative	Normalization	0.083
	Net NPLs to Net Advances ratio	Negative	Normalization	0.083
	Provisions to NPLs Ratio	Positive	Normalization	0.083
Profitability	Return on Assets	Positive	Normalization	0.125
	Return on Equity	Positive	Normalization	0.125
Liquidity	Liquid Assets to Total Assets	Positive	Normalization	0.125
	Loans to Deposits ratio	Negative	Normalization	0.125

Limitations of Index and Way Forward

The robustness of the index remains the main question to be addressed. While the Index is able to capture periods of strong and poor performances of the banking sector, its robustness from a stability point of view is yet to be determined. As a first step in this direction, the FSI should be constructed on quarterly data. This will not only help to track the condition of the banking sector on a more frequent basis, but also increases the number of observations to facilitate a regression analysis for an assessment of the robustness of the Index.

As mentioned earlier, the most controversial step in calculating the FSI is the choice of the weighting scheme. One can easily argue that certain indicators in the index are more important than others. Therefore, the weights should change to reflect the contribution of those indicators. For this purpose, a detailed analysis can be conducted to decide on the weighting scheme.

Finally, the number of partial indicators in the index can be increased and definition of the existing indicators can be improved. Further research on these limitations will help in refining this simple index.

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Stress testing is a step to quantify banks' resilience to shocks emanating from increased credit risk, interest rate risk, exchange rate risk, equity price risk and liquidity risk. In general, the impact of these shocks is calibrated to the level of capital adequacy. The stress testing exercise carried out by the Banking Surveillance Department indicates the resilience of the banking sector towards various shocks.⁷ The results of the exercise are summarized in Table 6.5, and clearly indicate that:

Table 6.5: Results of Stress Tests for Commercial Banks in Pakistan

Assumed Shock	Impact on CAR (%)		
	CY05	CY06	H1-CY07
Credit Risk			
A 10 percent increase in NPLs with 100 percent provisioning rate	-0.5	-0.4	-0.4
A shift in categories of classified loans (NPLs)	-0.3	-0.3	-0.4
A 10 percentage point increase in NPLs to Loan ratio for Household Sector	-1.0	-1.0	-1.0
Market Risk: Interest Rate Shock			
A 200 bps increase in interest rate (Shift in Yield Curve)	-1.1	-0.7	-0.6
A shift and steepening of yield curve (50, 100, 200 bps for all 3 maturities)	-0.8	-0.5	-0.4
A shift and flattening of yield curve (150, 120, 100 bps for all 3 maturities)	-0.6	-0.3	-0.3
Market Risk: Exchange Rate Risk			
A depreciation of exchange rate by 13 percent (based on historical data)	0.3	1.1	1.3
An appreciation of Rupee by 20 percent	-0.2	-0.9	-1.0
Market Risk: Equity Price Risk			
A 20 percent fall in equity prices	0.0	-0.2	0.0
A 40 percent fall in equity prices	-0.3	-0.5	-0.2

Source: Banking Surveillance Department, SBP

- Banks show strong resilience towards assumed but plausible shocks. A one percentage point decline in CAR will leave the ratio at 12.8 percent for the commercial banks: significantly higher than the minimum CAR of 8 percent.
- The resilience of the banking sector improved during CY06, as well as during H1-CY07, as similar shocks have a relatively less impact on CAR in CY06 as compared to CY05. Strengthening capital position of the banking sector in the wake of increasing minimum capital requirements has helped banks in enhancing their risk appetite.

Besides the overall position of commercial banks, a bank-wise sensitivity analysis indicates that the CAR for none of the commercial banks falls below 8 percent in response to the first two types of shocks to credit risk. However, in case of the third specified shock, CAR for three banks holding 14 percent of banking sector assets may decline to one percentage point below the minimum requirement of 8 percent. Notably, in case of market risk (assumed interest rate shocks, exchange rate shocks and equity price shocks), none of the banks fall below the minimum requirement of 8 percent. This suggests that the recent 50 bps rise in the benchmark 3-day Repo rate is less likely to have any significant impact on the profitability of the banking sector.⁸

While the above sensitivity analysis indicates that the resilience of the banking sector has strengthened over time and in absolute terms, one should keep in mind the limitations of a single factor sensitivity analysis. This kind of sensitivity analysis is a step towards full fledged stress testing of the banking sector.

6.5 Further Issues in Stability

While the indicators of financial soundness and results of the stress testing exercise provide comfort about the condition and resilience of the banking sector, there remain a few areas of concern such as maturity mismatches, need for consolidated supervision, status of risk

⁷ All the number used in the Stress testing section are based on the stress-testing exercise conducted by the Banking Surveillance Department, and discussed in the annual publication "Banking System Review (BSR) 2006", State Bank of Pakistan, available on www.sbp.org.pk/publications.

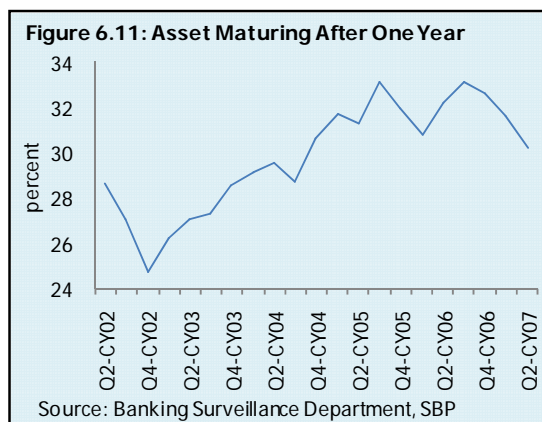
⁸ Monetary Policy Statement, July-December 2007, State Bank of Pakistan.

management systems etc. An assessment of these issues will supplement our quantitative analysis of banking system stability.

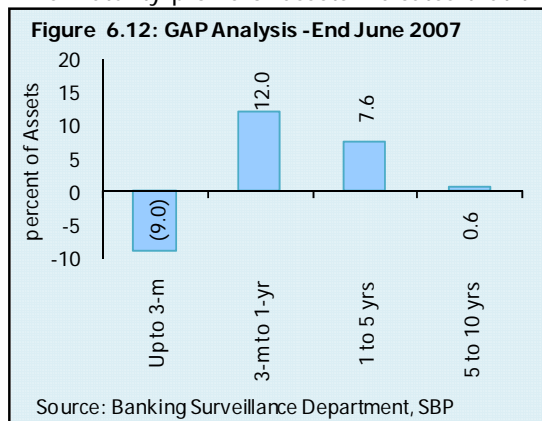
6.5.1 Maturity Mismatches

Although maturity mismatches are inherently built into the nature of banks' business i.e. converting short-term deposits (largely payable on demand) into assets of fixed maturities, excessive mismatches have strong implications for the stability of the banking sector. The maturity mismatch aspect has increased for banks operating in Pakistan during recent years. On the asset side, banks' increasing exposure towards mortgage financing, fixed investment financing, infrastructure and lease financing etc, has played an important role in increasing the tenor of assets held by the banking sector.

The maturity profile of assets indicates that the share of assets with tenors beyond one year has steadily increased to over 30 percent by end CY06 (Figure 6.11). A more formal way to assess the level of maturity mismatch is the GAP analysis i.e. the difference between rate-sensitive assets and rate-sensitive liabilities, categorized in different time buckets. Figure 6.12 shows that there is a negative gap for assets and liabilities with maturities up to 3-months. This negative gap primarily arises from the fact that over 50 percent of rate-sensitive liabilities have less than three month maturity. The positive GAP for all other time buckets shows that banking sector assets are of longer maturities than the liabilities. This gap analysis suggests that the banking sector is operating at a considerable maturity mismatch. However, with the exception of one time bucket, the maturity mismatches for all other time buckets fall within the safe limit of positive/negative 10 percent of total assets. The launch of various long term deposit mobilization schemes by a number of banks to mobilize long term deposits is expected to address this issue. Decline in the share of assets maturing after one year horizon is also an indication of this fact.



The maturity profile of assets indicates that the



Being cognizant of this issue, SBP has introduced tiered cash reserves requirements for demand and time liabilities to encourage banks to mobilize long term deposits. Specifically, while the demand liabilities (including time liabilities of less than one year maturity) attract cash reserve requirement of 7.0 percent, time liabilities of more than one year maturity are exempted from the CRR. Besides these recent developments, SBP has already also allowed banks to securitize their long-term assets, and has also issued detailed guidelines for this purpose. However, this activity has yet to take-off. None of the banks have issued any bond for asset securitization purposes. The prime reason for not opting for instruments of credit risk transfer is that the banking sector continues to enjoy ease of liquidity in the wake of burgeoning economic activities and all time high influx of workers' remittances, and has not yet felt the need to sell-down its long-term assets.

6.5.2 Coordinated Supervision

The growing wave of mergers and acquisition (M&As) across the financial sector (banks and non-bank financial institutions) has not only paved the way for business diversification for

banks, but has also resulted in shifting the ownership structure of the banking sector, which has strong implications for the risk management and stability of the banking industry. Increased interdependencies due to cross-ownership within financial institutions (banks and non-banks) and across sectors (financial and corporate sectors) also have strong bearings for the risk profile of the banking sector. This trend is exemplified by the emergence of the *conglomerate ownership structure* where for instance, corporate industrialists now own banks, insurance companies and manufacturing concerns as different components of their business enterprise. The risks are further intensified due to home and host supervisory issues in the presence of increasing foreign ownership of banks (for details, please see the thematic article on "*Consolidation of the Financial Sector*" in Part I of this report). Additionally, the complexities of banking business are also affected by the ongoing process of liberalization of the financial sector.

Being the regulator and supervisor of the banking sector, SBP interacts with SECP on an ongoing basis to ensure improved coordination between the two regulators. Furthermore, SBP has signed Memorandums of Understanding (MoUs) with 15 central banks and supervisors to deal with home-host regulatory and supervisory issues.

6.5.3 Operational Risks

Rapid growth of the banking sector alongwith increasing interdependencies and complexities of the banking business in recent years has increased the incidence of operational risk in the industry. Moreover, adoption of information technology solutions and outsourcing of processes by banks, while strengthening their operational capabilities, have also resulted in creating entirely new types of operational risks. Consequently, SBP has been actively pursuing the banking sector to improve their internal control systems. The issuance of detailed guidelines on Internal Controls is a step to facilitate banks and DFIs in evaluating their business processes and risk management policies. The guidelines include internal controls principles, components of control management, implementation of internal controls and guidelines for evaluating internal controls. Issuance of guidelines for IT Security, and Business Continuity Plan are some of the important regulatory measures taken to facilitate operational risk management.

The on-going implementation of Basel capital accord II (Basel II) is expected to help in managing operational risks, as the capital charge for operational risk is explicitly recognized in this framework. Specifically, capital charge for operational risk under the basic indicator approach is a fixed percentage of the average annual gross income of a bank for three years. Under the standardized approach, the business activities of the bank are classified into eight categories and capital charge for each line of business is a fixed percentage of the gross income contribution from those businesses, ranging from 12 to 18 percent. In this backdrop, the implementation of Basel II will facilitate prudent management of operational risk.

While the above policy initiatives are important for controlling operational risks, the effective implementation of these policies rests on the availability of accurate data. Ensuring access to accurate, relevant and timely data for operational risk measurement is the real challenge for the banking sector in Pakistan.

6.5.4 Financial Products: Derivatives Business

A noticeable development in the banking sector is the emergence of financial derivatives over the past three years. These financial derivatives⁹ are primarily used to hedge certain financial and market risks, especially exchange rate and interest rates risks. Since the commencement of financial derivatives in the year 2003, the volume of derivatives has increased significantly to reach Rs 337.8 billion by end March CY07 (**Table 6.6**).

Keeping in view the changing market dynamics and to promote the development of Over the Counter (OTC) Financial Derivatives market, SBP issued detailed regulations for financial

⁹ Financial derivative is a type of financial contract the value of which is determined by reference to one or more underlying assets or indices.

derivatives¹⁰ in 2004. These regulations require banks/DFIs to obtain status of Authorized Derivatives Dealers (ADD) or Non-Market Maker Institutions (NMI), depending on the level of expertise prescribed in the eligibility criteria, before undertaking business related to financial derivatives. At present, 5 institutions have obtained the status of ADD as compared to 3 in CY05. However, none of the financial institutions have applied for an NMI status uptil now.

Table 6.6: Outstanding Derivative Transactions

Billion Rupees as on 31st March

	CY05	CY06	CY07
FX Options	6.0	17.9	74.3
Interest Rate Swaps	8.5	97.7	162.3
Forward Rate Agreements	-	-	-
Cross currency Swaps	-	-	101.1
Total Volume	14.5	115.5	337.7

Source: Banking Surveillance Department, SBP

Under the Financial Derivatives Business Regulations (FDBR), the authorized institutions are allowed to undertake three types of transactions including Interest Rates Swaps (IRS),¹¹ Foreign Exchange Options (FX Options),¹² and Forwards Rate Agreements (FRAs).¹³ All other types of transactions still require prior approval from the SBP. Specifically, Cross Currency Swaps (CCS) are also allowed against one-off approvals from the SBP. The volume of derivatives transactions indicates exponential growth over the past three years. The composition of transactions indicates that IRS dominates the OTC market with a share of 48.1 percent, followed by CCS at 29.9 percent in the outstanding volume of transactions. Surprisingly, there is no significant activity in FRAs.

While the SBP ensures prudent management of the overall risk associated with these sophisticated derivatives transactions by prescribing the eligibility criteria for the institutions, the financial derivatives business is still in its infancy. Absence of NMI, fewer numbers of ADDs, non-availability of specific benchmarks and reliable market data seem to be the major constraining factor for the development of the derivatives market.

6.6 Conclusion

In conclusion, the analysis of both quantitative and qualitative indicators suggests that CY06 was yet another year of strong financial performance by the banking system. Not only have financial indicators improved during the year, but the resilience of the banking sector towards hypothetical, but plausible, shocks has also improved. Another positive development is the fact that the strong performance is shared among majority of the banks.

While the overall size of the banking sector has reached Rs 5.0 trillion by end H1-CY07, more than two-fold increase in the loan portfolio in just three years is considered to be high. Even though this strong expansion is accompanied with diversification across sectors as banks have ventured into relatively new areas like mortgage financing, lease finance, project financing (traditional business areas of non-bank financial institutions), aggressive lending tendencies have implications for the asset quality of the banking sector.

While on-going mergers and acquisitions are aiding the process of consolidation of the banking sector, the resulting ownership structure is posing new challenges for the regulators and supervisors. Specifically, cross ownership – where banks own non-bank financial subsidiaries and associated companies, industrial and brokerage companies own banks etc., has increased the complexities of the financial sector. Similarly, cross border ownership of the banking sector involve home-host regulatory and supervisory issues. Effective

¹⁰ Vide BSD Circular No 17, Financial Derivatives Business Regulations, November 26, 2004.

¹¹ In Interest rate swaps, a stream of interest payments of one party is exchanged with another stream of interest rates of the other party. These swaps are largely used by the corporate sector to hedge themselves for the interest rate movement risk.

¹² In FX option (also known as currency option), the owner has the right but not the obligation to exchange money denominated in one currency (say Pak Rupee) into another currency (say US Dollar) at a pre determined exchange rate and on a specified date. FX options are widely used to mitigate foreign exchange rate risks.

¹³ In FRAs, one party generally pays a fixed interest rate and receives a floating rate equal to the underlying rate (also called the reference rate). FRAs are used to mitigate or eliminate interest rate risks.

supervision in this environment requires a strong coordinated supervisory mechanism and strong interface with other supervisory/regulatory agencies.

Fortunately, none of the above issues poses a significant threat to the stability of banking sector in the current environment. The deceleration in credit growth, close monitoring of incremental NPLs, and the growing emphasis on internal control and risk management systems will serve to enhance banking sector stability in the future. The on-going implementation of Basel II, increased minimum capital requirements and mergers & acquisitions are expected to play a key role in improving the stability of banking sector.