

# 3 Ownership, Spreads and Profitability of the Banking System<sup>1</sup>

Subsequent to the implementation of the extensive financial liberalization program implemented in 1989, the banking system of Pakistan witnessed visible structural changes during the first half of the 1990s. This program was supplemented with another set of reforms in 1997, when SBP was given legal autonomy and adopted a risk-based inspection process in line with the Basel Capital Accord (Basel I). Subsequently, a strategic direction for the financial sector was formulated to transform the weak banking system into a sound and efficient system which is resilient to external shocks, and able to play its vital role in the development of the economy.<sup>2</sup>

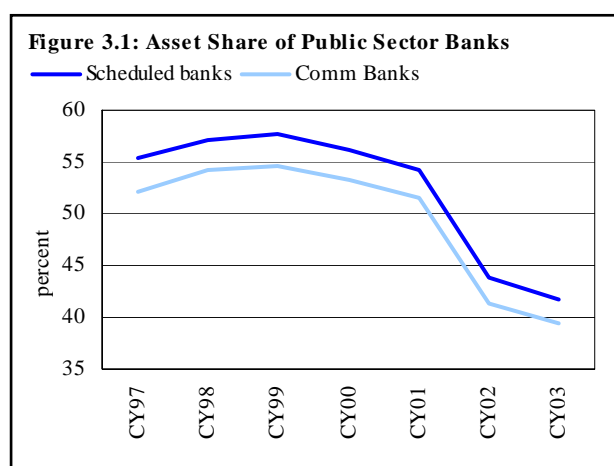
Keeping the future direction of reforms and the rapidly changing operating environment in view, the minimum paid-up capital (net of losses) requirement for banks was increased from Rs 500 million to Rs 1,000 million in December 2000<sup>3</sup> to strengthen the capital base of the scheduled banks.<sup>4</sup> Banks were required to meet this increased requirement in two phases by end-December 2002. This measure alone exerted a profound effect on the structure of the banking system, as it initiated a process of mergers/acquisitions besides strengthening the capital base of the banks. In this backdrop, this chapter is focused on the analysis of these policy changes on the structure of the banking system, the level of banking system concentration, behavior of banks' capital and profits along with the intermediation cost from CY97 to CY03.<sup>5</sup>

## 3.1 Structure of the Banking System

The continued efforts towards privatization of the public sector commercial banks along with the ongoing process of mergers/acquisitions have led to visible changes in the ownership structure and the concentration of the banking system. A number of widely used indicators ranging from the number of banks to various concentration ratios are analyzed in this section to gauge the changes in the structure of the banking system from CY97 onwards.

### 3.1.1 Ownership Structure

The ownership structure of the banking sector has changed substantially over the period of assessment, as the share of public sector banks (both commercial and specialized) in the overall assets of the scheduled banks fell sharply from 55.3 percent in CY97 to 41.8 percent by end-CY03 (see **Figure 3.1**). Moreover if Habib Bank Limited (HBL) is excluded from this group due to its privatization, the share of public sector banks further declines to only 25.3 percent.<sup>6</sup> Given this visible shift, around three-fourths of the banking sector assets are now owned/managed by the private sector as compared to only two-fifths in CY97. This



<sup>1</sup> For financial soundness of the banking system, please see SBP report titled "Banking System Review 2003".

<sup>2</sup> For details, please see SBP report titled "Pakistan: Financial Sector Assessment 1990-2000".

<sup>3</sup> Vide BSD Circular No. 31 dated December 6, 2000.

<sup>4</sup> State Bank of Pakistan has recently increased the minimum paid-up capital (net of losses) requirements for banks/DFIs from existing Rs 1,000 million to Rs 2,000 million vide BSD Circular No. 12 of 2004 dated August 25, 2004. Banks/DFIs are required to meet this capital requirement in two phases, i.e. Rs 1,500 million by end-December 2004 and Rs 2,000 million by end-2005.

<sup>5</sup> We have used data from audited balance sheets of banks (except ZTBL) which are available for end Calendar Year (CY).

<sup>6</sup> In this chapter, analysis is based on the data upto end-CY03. HBL was privatized with effect from 26<sup>th</sup> February, 2004.

massive turnaround in ownership structure was facilitated by: (1) privatization of the public sector commercial banks; (2) increasing business activities of the private banks; and (3) shifting of financial assets from NFBIs towards private banks due to mergers/acquisition of various non-banking institutions with banks.

While privatization of the banks shifts financial assets from the public to the private sector, mergers/acquisitions signify financial sector consolidation. A number of financially weak banks merged their operations with other banks to benefit from economies of scale and scope. As a result, the number of scheduled banks declined to 40 by end-CY03 as compared to 46 in CY97 (see **Table 3.1**). Moreover, most of the mergers/acquisitions have taken place among the local private banks, NFBIs and the foreign banks. The former two groups generally acquired/purchased or merged their operations with the latter group, and have established their banking business as local private banks. This is also evident from a sharp decline in the number of foreign banks and a corresponding rise in the number of local private banks (LPBs).

### 3.1.2 Banking Sector Concentration

Banking sector consolidation coupled with visible changes in the ownership structure has far reaching implications not only in creating a level playing field for banks but strengthening the competitive business environment as well.

To evaluate the impact of these reforms specifically on competition in the banking

system, a number of concentration indicators have been analyzed. These include the Lorenz curve, Gini coefficient, M-concentration ratio, Herfindahl Index and co-efficient of variation of major banking sector variables like assets, advances, deposits etc.

**Table 3.1: Number of Banks as at end-Period**

	CY97	CY00	CY01	CY02	CY03
PSCBs	6	6	6	5	5
LPBs	16	14	14	16	18
FBs	20	19	19	16	14
SBs	4	4	4	3	3
Total	46	43	43	40	40

#### *Lorenz Curve*

Lorenz curve is a well-known cumulative frequency curve (developed by Max O. Lorenz) used more often to gauge income inequality. The same curve is used here to measure the degree of concentration in the banking sector, as the cumulative percentage shares of the various bank variables (assets, advances, deposits and paid-up capital) are plotted against the cumulative percentage shares of the number of banks (see **Figure 3.2**). While the diagonal line of 45° signifies absolute equality (i.e. every bank has the same share in the overall banking system), the area of the Lorenz curve below the line indicates the extent of inequality.

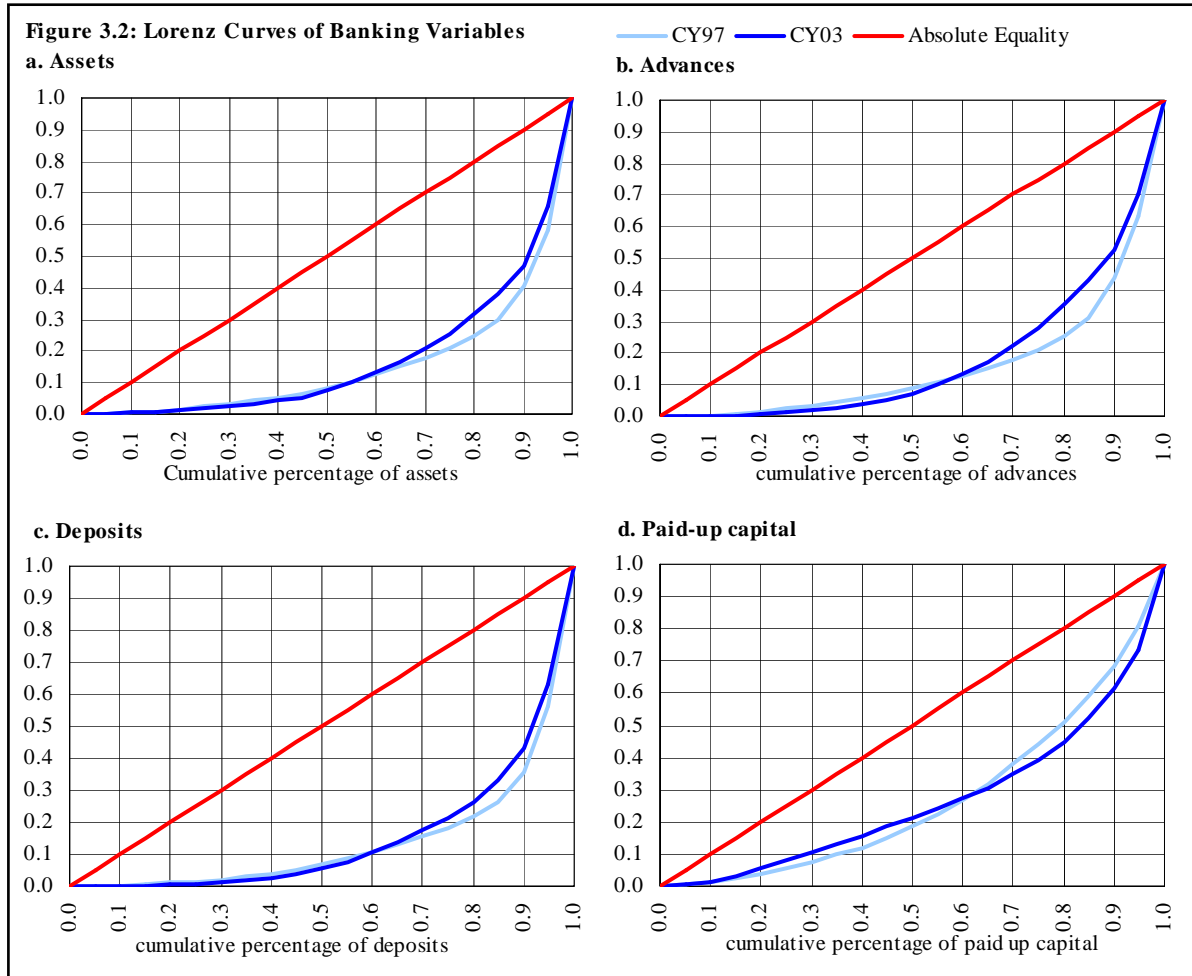
Lorenz curves of the banking sector assets for CY97 and CY03 indicate that the share of the top 20 percent of the banks in the assets of the overall banking sector has declined from 75.3 percent in CY97 to 68.7 percent in CY03, implying a decline in the concentration of the banking sector. Similar improvements are also visible from the Lorenz curves of other banking sector variables. Lorenz curves for CY03 are relatively closer to the absolute equality line compared to the Lorenz curves for CY97.

Although improvements are graphically visible (except in the case of equity), it would be naive to deduce that the concentration has declined across the board, as the Lorenz curves for most of the variables intersect each other. In order to have a clearer idea of concentration and to analyze its time dynamics, a summary measure of concentration named *Gini-coefficient* has been calculated. This is the ratio of the area between the Lorenz curve and absolute equality line to the entire (triangular) area

below the absolute equality line. Dasgupta et al. (1973) has proposed the following formula for estimation.<sup>7</sup>

$$Gini = \frac{2}{\mu n^2} \sum_{i=1}^n i X_i - \frac{n+1}{n}$$

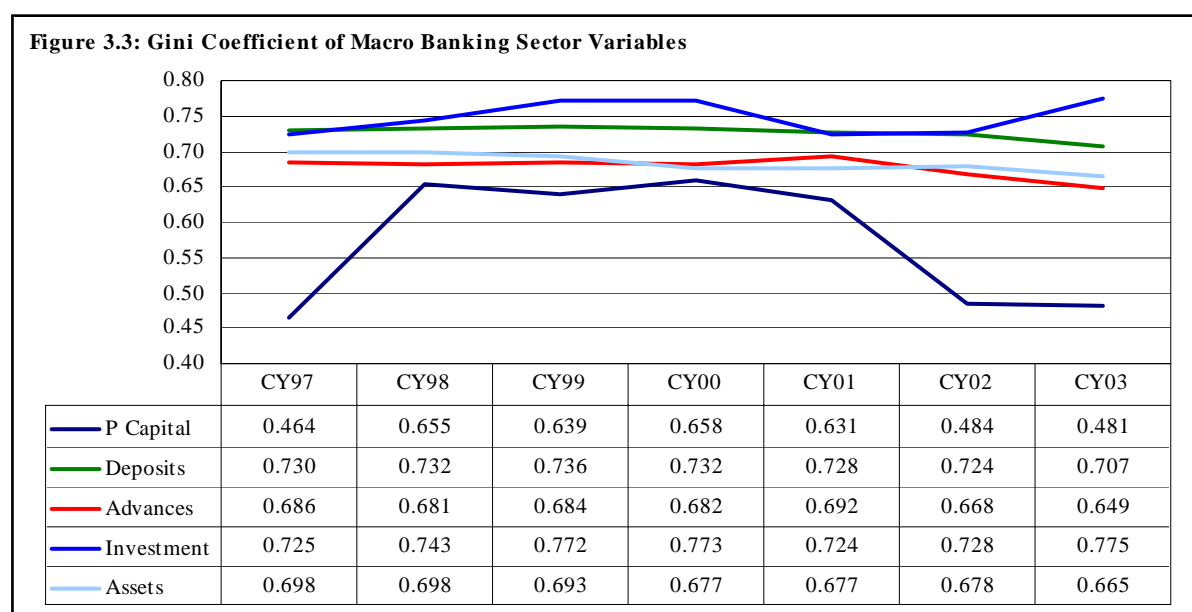
In the above formula, the definitions of variables in the context of the banking sector are described as:  $\mu$  is the mean of asset shares,  $n$  is the number of observations in ascending order, and  $X_i$  is cumulative share of bank  $i$ . Theoretically, the Gini coefficient can assume any value between zero and one (both inclusive). Zero value represents absolute equality and the unit value indicates complete inequality.



The value of Gini coefficients for selected variables of the banking sector from CY97 to CY03 are depicted in **Figure 3.3**, which clearly shows that despite an increase in Gini-coefficients during the late 1990s, concentration in the banking sector has declined over time, as the Gini-coefficients for all the variables (except investment) have improved. The increase in Gini-coefficient following the reforms in 1997 is largely explainable by the improved position of public sector banks at that time. Actually, capital injection in two big banks helped not only in strengthening their equity base, but also in expanding their business activities. Furthermore, over the same period foreign banks were facing difficulties in expanding their business activities due to the freezing of the foreign currency deposits. However, the concentration indicators started improving from CY00. While the asset concentration,

<sup>7</sup> For details, please see Dasgupta Partha, Amartya Sen and Davis Starrett (1973), "Notes on Measurement of Income Inequality" Journal of Economic Theory, Vol. 6, p 180-77.

an indicator of market share, witnessed an almost steady decline during the period of analysis, the Gini-coefficient for other variables increased slightly before recording improvements by end-CY03.



**Herfindahl Index:** Herfindahl index, another measure of concentration, is defined as the sum of the squared shares of the market participants. Mathematically, it can be defined as

$$H = \sum_i^n \alpha_i^2 \quad \text{where } \alpha_i \text{ is the market share of bank } i.$$

The value of  $H$  will approach 1.0 when the number of banks decreases and/or the concentration in the sector increases.<sup>8</sup> Looking at **Table 3.2**, the Herfindahl index for most of the variables has moved towards zero over the period of analysis, indicating a decline in banking sector concentration. This improvement in the index is entirely on account of weakening market concentration, as the number of banks (another variable that can affect this index) has been declining since CY97.

**Table 3.2: Herfindahl Index**

	CY97	CY98	CY99	CY00	CY01	CY02	CY03
Equity	0.256	0.087	0.079	0.107	0.176	0.161	0.136
Paid up Capital	0.040	0.142	0.134	0.143	0.126	0.062	0.060
Deposits	0.115	0.119	0.126	0.124	0.119	0.113	0.103
Advances	0.091	0.094	0.097	0.094	0.096	0.085	0.078
Investment	0.119	0.116	0.134	0.146	0.111	0.117	0.123
Assets	0.104	0.105	0.107	0.102	0.099	0.097	0.091

**M-Concentration Ratios and Coefficient of Variation:** These two indicators also give useful information about market structure. While different M-concentration ratios indicate the market share of a few big participants (skewness in distribution), the coefficient of variation measures the degree of dispersion.

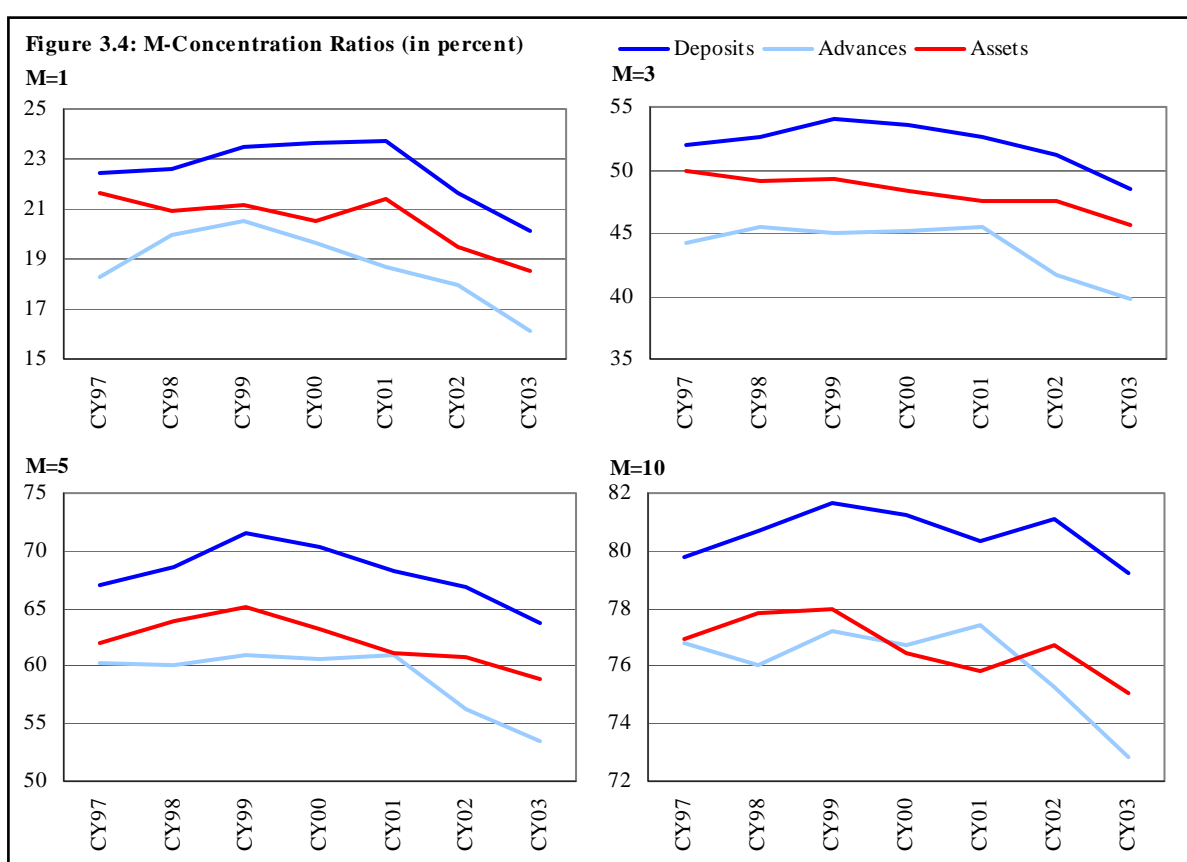
All the four (top one, three, five and ten banks) concentration ratios of selected variables suggest that despite some rise in the early years of analysis, the market share of the big banks has witnessed a considerable decline by end-CY03 (see **Figure 3.4**). Specifically, despite the amalgamation of

<sup>8</sup> Herfindahl index can assume the maximum value of one, when there is a single bank in the banking sector. It also seems to be a better indicator of market concentration compared to the Gini coefficient, as the latter do not take into accounts the number of banks and focuses on the size of banks only.

National Development Finance Corporation (NDFC) with the National bank of Pakistan,<sup>9</sup> the asset share of the five big banks plunged to 58.8 percent by end-CY03 compared to 62.0 percent during CY97. Coefficient of variation also shows an improvement for all the variables except for paid-up capital from CY97 (see **Table 3.3**). These developments in banking sector concentration are largely attributed to the on-going reform process.

**Table 3.3: Coefficient of Variation**

	CY97	CY98	CY99	CY00	CY01	CY02	CY03
Equity	3.322	1.723	1.586	1.919	2.596	2.358	2.137
Paid-up Capital	0.935	2.352	2.238	2.292	2.128	1.238	1.190
Deposits	2.093	2.110	2.155	2.104	2.048	1.900	1.792
Advances	1.799	1.819	1.825	1.767	1.795	1.571	1.477
Investment	2.134	2.073	2.234	2.325	1.969	1.940	2.003
Assets	1.973	1.957	1.947	1.866	1.829	1.722	1.650



It is evident from the various measures employed to study market structure dynamics of the banking sector that although the market concentration is still high in absolute terms, it has declined considerably by end-CY03. This declining trend of market concentration is a welcome development, as it instills a spirit of competition in the banking system. The continued banking sector consolidation triggered by the increase in minimum paid-up capital requirement and the expanding business activities of the private banks are the major reasons of the changing market structure. Banking sector concentration is likely to decline further in the future both due to the aggressive marketing strategy of

<sup>9</sup> NDFC was one of the biggest Development Finance Institution with assets of over Rs 20.0 billion. The merger of this DFI with NBP (one of the biggest five banks) increased the asset base of NBP.

the private banks and mergers/acquisition of a few more small banks with other institutions, and a more equitable share is expected to emerge in the coming years.

### **3.2 Behavior of Banks' Capital**

Importance of banks' capital base can hardly be over emphasized, both in theory and practice of banking business and regulation. In theory, it is generally argued that capital is one of the possible tools to reduce the moral hazard problem -- the limited liability of the bank's owners may induce them to take on more risk. In practice, banks are in the business of risk taking. Specifically, banks manage a balance sheet which is in a continuous state of flux due to the withdrawal of deposits (liabilities) on demand while maintaining assets with fixed maturity (loans that are generally non-tradable). This key characteristic of the banking business makes them vulnerable to the changes in depositors' confidence. Capital is considered as one of the crucial elements which protects banks against changes in depositor's perceptions.

Given this scenario, banks would like to maintain a minimum level of capital or capital to asset ratio, even in the absence of any regulatory requirement. Asymmetric information coupled with the inability of small depositors to monitor banks, and the related free-rider problem,<sup>10</sup> highlight the significance of the role of the regulators and regulatory capital requirements.

At present, banks in Pakistan are required to maintain a minimum capital to risk weighted asset ratio (CAR) of 8 percent (benchmark set by Basel Accord) and a minimum paid-up capital of Rs 1,000 million. While the former requirement was made effective in 1997,<sup>11</sup> the latter restriction was imposed in December 2000. Keeping these restrictions in mind, this section is devoted to an analysis of the response of the banking sector to these enhanced capital requirements and associated factors.

In 1997, the risk weighted CAR for commercial banks was 6.0 percent; below the required target of 8 percent. This required banks to enhance their capital to reach the stipulated limit. To achieve this end, banks were faced with three possible options, which included: (1) injecting/issuing equity capital; (2) reducing the share of risky assets in total assets; and/or (3) reducing total assets.

Banks can use both internal and/or external sources to strengthen their equity. In general, capital is increased through internal sources, as it simply requires shifting profits into reserves, instead of paying dividend to the shareholders. The external sources include the issuance of new equity and subordinated debt. The former will increase the core (Tier-I) capital and the latter counts towards supplementary (Tier-II) capital.

The second possible option for banks to strengthen their capital base is to bring about a change in the composition of banks' asset portfolio from high risk to low risk assets.<sup>12</sup> Due to different weights for various assets under the Basel Accord, a bank can reduce the share of risk-weighted assets in total assets even without any change in total assets. The third option is to consolidate their overall business activities. This option is most unlikely, as doing so will not only squeeze the market share of the bank, but also its profitability.

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<sup>10</sup> Free rider problem occurs when people who do not pay for services take advantage of the services that other people have paid for.

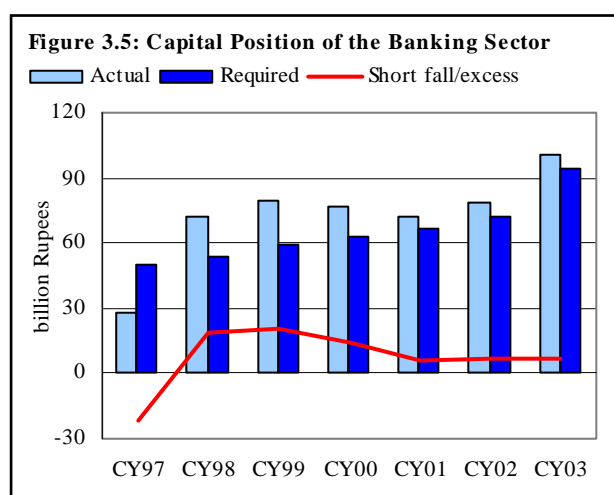
<sup>11</sup> BPRD Circular No 36 dated November 4, 1997.

<sup>12</sup> Under Basel Accord, various assets of a bank are assigned a risk weightage ranging from Zero to 100 percent. Investments in government securities are assigned risk weight Zero, as there is minimum default risk. On the other end, loans and fixed assets of banks are assigned a risk weight of 100 percent. Other assets like balances with other financial institutions, money at call, investment in enterprises owned or controlled by the federal government are assigned risk weightages ranging from Zero to 50 percent.

Given these three potential options, the first is the most desirable from the regulator's point of view, as the remaining two options may lead to a credit crunch in the economy, particularly if the banking sector is severely undercapitalized and restrictions are stringent.<sup>13</sup>

### 3.2.1 The Stylized Facts

As mentioned earlier, according to the international norms set by the Basel I, the banking system in aggregate was undercapitalized in 1997. Specifically, the overall capital of the banking system was Rs 28.3 billion against the minimum required amount of Rs 50.0 billion to achieve a risk-weighted CAR of 8 percent (see **Figure 3.5**). However, this shortfall was not observed across all the banking groups. Looking at **Table 3.4**, the real problem was with the public sector commercial banks (PSCBs) and specialized banks (SBs) due to the poor asset quality and losses suffered by these banks. The overall equity of both these groups was not only below the required level, but was negative as well. Due to this insolvent position of these banks, the government (being the owner of these banks) was forced to step in for the injection of fresh equity in these banks. Consequently, the government provided equity support of Rs 30.9 billion to two big commercial banks during mid-1998 to make them solvent. As a result, risk-weighted CAR of this group jumped to over 10 percent.



However, this healthy capital position proved to be short-lived, as the poor asset quality of these banks continued to undermine their equity base. This, coupled with government efforts to privatize these banks led to another round of equity injections, and the government injected further equity of Rs 15.9 billion in the two big commercial banks during 2000. Since then, the public sector commercial banks as a group have been able to maintain a relatively strong capital base.

It was in light of these factors that SBP subsequently increased the minimum paid-up capital (net of losses) requirement to Rs 1,000 million in December 2000, to strengthen the fragile capital position of the banking system. This measure not only helped to bolster the capital base of the banks, but also initiated the process of mergers/acquisition (consolidation of the financial system). The strengthening capital base is also evident since 2000, as the

**Table 3.4: Capital Position of the Banks**

billion Rupees					
	CY97	CY00	CY01	CY02	CY03
<b>Actual Position</b>					
PSCBs	-3.5	33.1	33.3	35.1	42.5
DPBs	17.4	22.7	24.5	39.9	54.4
FBs	19.1	24.1	26.2	28.1	26.0
SBs	-4.7	-3.0	-11.6	-24.5	-22.6
Total	28.3	76.9	72.5	78.6	100.4
<b>Required Level of Capital</b>					
PSCBs	21.9	25.6	27.7	22.9	31.0
DPBs	11.7	19.7	20.5	33.0	47.5
FBs	10.5	10.7	11.3	9.8	9.0
SBs	6.0	7.2	6.7	6.2	6.4
Total	50.0	63.1	66.2	71.8	93.9
<b>Excess/Shortfall</b>					
PSCBs	-25.3	7.5	5.6	12.2	11.5
DPBs	5.7	3.0	3.9	6.9	6.9
FBs	8.6	13.4	15.0	18.3	17.1
SBs	-10.7	-10.1	-18.2	-30.7	-29.0
Total	-21.7	13.8	6.3	6.8	6.5

<sup>13</sup> Capital requirements as one of the causes of credit crunch has been the topic of various studies. For details, please see Saibal Ghosh et al "Behavior of Bank Capital: Issues and Evidence from India" Economic and Political Weekly, March 20, 2004.



gap between the actual and minimum required capital to maintain CAR of 8 percent has substantially increased (see **Table 3.4**).

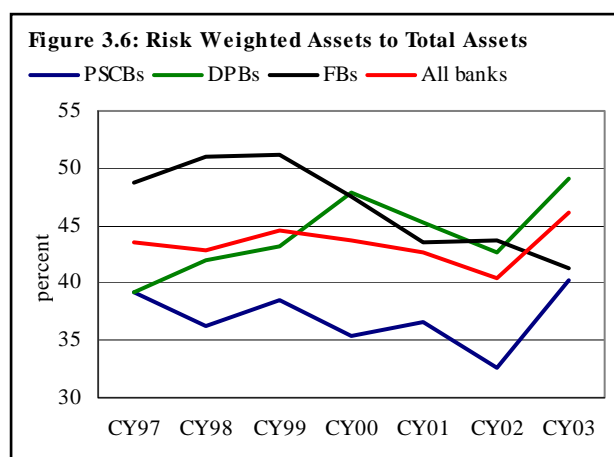
Another crucial factor which affects risk-weighted CAR is the denominator i.e. the risk-weighted assets. The temporal behavior of risk-weighted assets suggests that there is an indication of portfolio shift from risky assets to less risky assets (see **Figure 3.6**). The decline in share of risk weighted assets to total assets ratios of a number of banks lends credence to this inference, particularly for banks with risk-weighted CAR close to and/or below the required level. However, foreign banks are an exception, as the decline in this ratio for these banks is largely on account of their greater investment in government securities.

The combined effect of changes in capital (numerator) and risk-weighted assets (denominator) is analyzed through the capital to risk-weighted CAR for which a balanced panel data of 30 banks from CY97 to CY03 is used.<sup>14</sup> The generalized least squares (GLS) estimates of simple panel regression suggest that although all the banking groups are maintaining a considerably high risk-weighted CAR against the bench mark of 8 percent, it differs significantly among the various banking groups (see **Table 3.5**). The CAR of the public sector banks is significantly lower than the private sector banks (reference group), and foreign banks' average CAR is 1.08 percentage points higher than the reference group.

Coefficient estimates of the panel regression with both the ownership and time dummies indicate that the risk-weighted CAR of the banking sector remained higher than the CY97 level (reference year) for all the years except CY00 (see **Table 3.6**). Although the difference was not statistically significant among all the years, the magnitude of the coefficients for CY02 and CY03 suggests that the risk weighted CAR has witnessed visible improvements over the past two years.

### 3.2.2 Determinants of Banks' Capital

The above discussed framework for the analysis of changes in risk-weighted CAR can also be used to study a bank's capital behavior empirically. The framework suggests that changes in risk-weighted CAR are largely driven by changes in capital and risk-weighted assets. A set of factors including internal bank variables, banking industry variables and economy-wide factors can affect the changes in both capital and risk-weighted assets. Mathematically, we can write the model as follow:



**Table 3.5: Panel Regression With Ownership Dummy**

Dependent Variable Risk-weighted CAR		
	Coefficients	t-Statistics
Constant	12.52	125.83
Public Sector Banks	-0.83	-3.28
Foreign Banks	1.08	6.97
Adjusted R-square	0.80	
No. of Observation	210	

Note: Reference group is DPBs

**Table 3.6: Panel Regression with Ownership and Time Dummies**

Dependent Variable Risk-weighted CAR		
	Coefficients	t-Statistics
C (Intercept)	11.11	5.88
CY98	0.76	0.31
CY99	1.53	0.62
CY00	-0.15	-0.06
CY01	0.42	0.17
CY02	1.79	0.73
CY03	0.96	0.39
Foreign Banks	7.76	5.13
Public Sector Banks	-1.34	-0.79
Adjusted R-square	0.12	
No. of Observation	210	

Note: Reference categories are the CY97 and DPBs

<sup>14</sup> These 30 banks hold over 90 percent of the banking sector assets.



$$CAR_{i,t} = \alpha_i + \beta X_{i,t-1} + \gamma Y_t + \delta D_t + \varepsilon_{it}$$

Where CAR is the capital to risk-weighted assets ratio; X is the set of bank specific factors affecting CAR; Y is the banking industry-level variables; D is a dummy variable to capture the ownership effect and  $\varepsilon$  is the error term. Furthermore, the bank specific factors are lagged by one period to overcome the endogeneity problem.

In this study, we used the lagged loans to asset ratio and the lagged return on assets as bank specific factors. The real primary yield of the 6-month Treasury bill is used as a banking industry-level factor, and real GDP growth is employed to capture changes in the overall economy. Two ownership dummy variables are also introduced due to significantly different behavior of the foreign banks.

The above regression is estimated using panel data of 30 banks from CY97 to CY03. The GLS estimates reported in **Table 3.7** indicate that approximately 90 percent variation in risk-weighted CAR is explained by the specified regression. These results raise a number of interesting issues. First, a negative and statistically significant coefficient of loan ratio suggests that risk-weighted CAR in a given period is significantly affected by the loan ratio of the preceding period. This is in-line with theoretical underpinnings; increase in loans raises the risk-weighted assets, which in turn will decrease risk-weighted CAR with an unchanged capital base.

**Table 3.7: Regression Results**

Dependent Variable Risk Weighted CAR <sub>t</sub>	Coefficients	t-Statistics
Constant	16.58	34.46
Loan ratio <sub>t-1</sub>	-0.12	-9.98
Return on Assets <sub>t-1</sub>	0.19	3.20
Real T-bill yield <sub>t-1</sub>	0.26	11.37
Real GDP Growth <sub>t-1</sub>	-0.82	-13.19
Private banks	0.73	3.71
Foreign Banks	4.10	13.78
Adjusted R-Squared	0.89	
No. of Observations	180	

Note: Reference categories are the CY97 and DPBs

Second, the average return on assets in time period  $t-1$  exerts a positive and significant affect on the risk-weighted CAR of time period  $t$ . This suggests that banks' profits have partially been used to augment the capital base; an indication of internal capital generation, i.e. plugging back of profits into reserves. Third, a rise in T-bill yield (a banking industry-level variable) also positively affects the risk-weighted CAR. This may affect CAR both through the generation of higher income for the banks and decline in risk-weighted CAR, as banks may be tempted to increase their investments in government securities if the yield is high. While the former will support capital through internal capital generation process, the latter will help in lowering the amount of risk-weighted assets.

Fourth, a negative and statistically significant relation between the GDP growth of time period  $t-1$  and banks' CAR at time  $t$  suggests that higher GDP growth usually accompanies higher credit expansion. The latter directly contributes to higher risk-weighted assets, which can lead to a decline in CAR with an unchanged capital position. Finally, the ownership dummies also turn out to be statistically significant, indicating differences in the CAR of different banking groups.

### 3.3 Behavior of Banking Spreads and Profits

The set of financial reforms which included the dismantling of mandatory credit allocations, liberalization of interest rates, increased competition due to expanding business activities of the private banks, strict regulatory requirements for proper provisioning against bad loans, and increased minimum paid-up capital requirements have had a significant impact on the cost of financial intermediation and profitability, as discussed below.

#### 3.3.1 Banking Spreads

Empirically, 'banking spread' is widely used to quantify the cost of intermediation. However, there is no single measure, which can exactly capture this theoretical concept of the cost of intermediation, as

banks do not offer a single rate to the depositors and charge one rate to the borrowers. In fact, banks' deposit and loan rates not only vary over time, but also vary from customer to customer, largely depending on the credit worthiness of the borrower and the amount of the deposit. Apart from the interest offered (charged), banks also charge fees and commissions for various services, which change the effective cost of borrowing and interest on deposits. A further complication in arriving at an appropriate measure of cost of intermediation comes from each individual bank's unique spectrum of interest rates, which reflects their risk outlook, their focus of business activities etc.

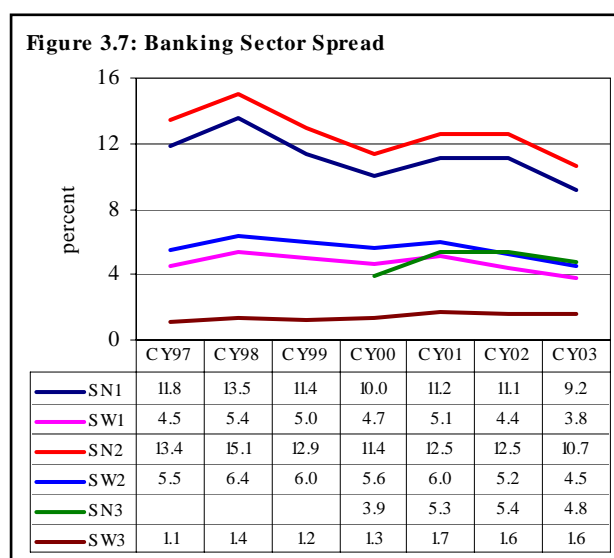
In finance literature, the most widely used measure of the cost of financial intermediation is the *net interest margin* (NIM) defined as the ratio of net interest income (interest income minus interest expense) to earning assets. However, this indicator suffers from a number of problems. First, NIM does not take into account the fees and commissions factor, which can change the effective interest rate. Second, it may substantially differ from the marginal spread due to the inclusion of all interest earning assets. Thirdly, it may not be a good indicator if the government and/or the central bank have capitalized banks by purchasing bonds below the market rate.

Keeping these issues and data availability in mind, and following the approach of Brock and Suarez (2000)<sup>15</sup> and Koeve (2003),<sup>16</sup> six different indicators ranging from a narrow to wide definition of banking spread are calculated. The definitions used are:

- SN1= ((interest received/average loans) – (interest paid/average deposits))\*100  
 SW1= ((interest received/average interest bearing assets) – (interest paid/average interest bearing liabilities))\*100  
 SN2= ((Interest plus commission received/average loans) – (interest paid plus commission paid/average deposits))\*100  
 SW2= ((interest plus commission received/average interest bearing assets) – (interest paid plus commission paid/average interest bearing liabilities))\*100  
 SN3= ((interest received on loans only/average loans) – (interest paid on deposits only/average deposits))\*100  
 SW3= ((interest received – interest paid)/average assets)\*100.

Here *S* stands for spread, *N* for “narrow” and *W* for “wide” in the various definitions of banking spread.

Using balance sheet data of the banks and the above definitions, alternative banking spreads are calculated from CY97 to CY03. A quick glance at **Figure 3.7** reveals that the calculating methodology matters, as alternative definitions yield visibly different results. Using a single definition of banking spread can lead to a possibly wrong conclusion about the cost of intermediation, which is one of the important determinants of the efficiency of the banking sector. For example, while the SN2 definition of



<sup>15</sup> Brock, Philip L. and Liliana Rojas Suarez (2000) “Understanding the behavior of bank spreads in Latin America”, Journal of Development Economics, Vol. 63, p 113-134.

<sup>16</sup> Koeve, Petya (2003) “The Performance of Indian Banks During Financial Liberalization”, IMF Working Paper WP/03/150.

banking spread indicates that cost of intermediation is substantially higher (i.e. over 10 percent), the SW3 definition gives a relatively lower banking spread (less than 2 percent).

Another important point to note is the behavior of banking spread over time. All measures except SW3 and SN3 have recorded a visible decline by end-CY03 as compared to CY97. However, this decline was not continuous, as the spread increased following the implementation of risk based supervisory/regulatory framework in CY97 and increase in minimum paid-up capital requirements. The upsurge in CY98 may be attributable to banks' response to the change in the supervisory framework, as a positive relation is generally envisaged between the spread and portfolio risk (usually proxied by the variation in loan rates, level of provisions and/or non-performing loans).<sup>17</sup> A marginal rise of 80 bps in the average return on earning assets and a visible increase of 12.0 percentage points in the provision to NPL ratio during CY98 lends credence to this argument. A substantial rise in paid-up capital of Rs 33.2 billion during CY98 may be another important factor contributing to a higher spread, as banks usually respond to the imposition of strict capital requirements by increasing the spread in an effort to offset some of the implicit cost resulting from compliance with the requirements.

Although the increase in spread during CY01 can be explained by these factors, an additional factor may also be the abrupt interest rate movements. In fact, the SBP Repo rate witnessed a two-way movement during CY01: a 100 bps increase during June 2001 and two successive cuts of 100 bps during the following two months. Banks inched up their lending rates following the first increase in the Repo rate, which also coincided with the period of tight liquidity. Although the Repo rate was decreased later, banks kept the lending rate unchanged and did not pass on the benefit to the depositors. As a result, the average returns on earning assets recorded a rise of 30 bps during CY01 compared to a 53 bps decline in the average cost of deposits, pushing up the banking spread. These changes in the lending and deposit rates are also in conformity with the general perception that the banks in a declining interest rate environment pass on the impact of low interest rate to the depositors than to the borrowers. Similarly, in a rising interest rate scenario, banks tend to revise their lending rate up first and provide the benefit to the depositor with some lag. In sum, although alternative spread measures witnessed two upsurges during CY97 to CY03, the trend remained on a declining track. This suggests that the cost of intermediation has declined slightly over time.

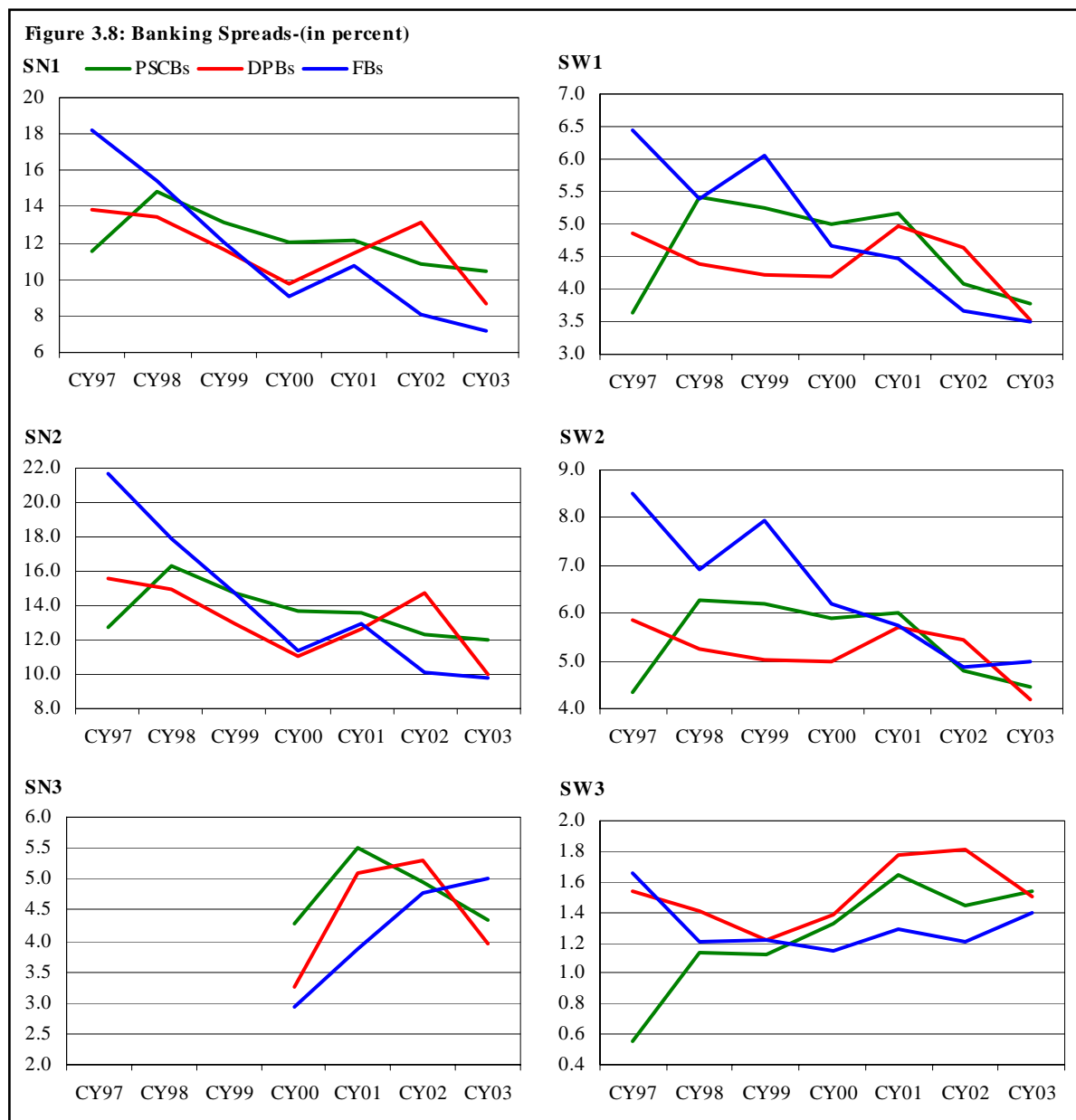
Having discussed movements in the various measures of banking spreads, analysis of these spreads for different groups of the banks may be more instructive. Wide variation across banking groups is evident from all the spread measures. This reflects the differences in business orientation, response to policy changes in the banking sector, increase in competition etc.

Looking at **Figure 3.8**, the most obvious finding is the convergence of spread among the banking groups. Specifically, the variation in SN1 across the banking groups declined from 6.7 percentage points in CY97 to 3.2 percentage points by end-CY03; and from 9.0 to 2.2 for SN2. Similarly, it declined from 2.8 to 0.3 for SW1, 4.1 to 0.8 for SW2 and 1.1 to 0.1 for SW3 during the same period. This convergence is largely facilitated by increased competition in the banking sector, both due to the increasing business activities of the private banks and the privatization of the big public sector banks. Actually, the previously traditional boundaries according to which foreign banks dealt primarily with the blue chips corporates and consumer finance activities, and domestic banks focused more on trade and commerce etc., are no longer well-defined due to the increasing competition among the banks as well as reorientation of focus on sectors other than the working capital needs of the corporate sector.

Among the banking groups, foreign banks enjoyed higher spread by all measures during CY97. This may be attributed to the retail operations of few big foreign banks, which in fact are responsible for introducing e-banking in Pakistan. The huge start-up cost for retail banking and lack of competition

<sup>17</sup> For details, please see Brock and Surez (2000), op. cit.

from other banks provided the opportunity to maintain high margins. In addition, relatively high interest charged on consumer banking as compared to loans given to the corporate sector also helped these banks to maintain higher spreads. This is also evident from the 17.7 percent average return on earning assets for the foreign banks in CY97, compared to 13.6 percent and 11.7 percent for the local private banks and public sector commercial banks. Importantly, foreign banks also offered higher returns to the depositors. However, the spread for the foreign banks recorded visible decline over the



period of analysis. This decline can be largely explained by: (1) freezing of foreign currency accounts; and (2) stiff competition from local private banks, particularly in the area of e-banking and consumer finance.

### 3.3.2 Banking Profitability

Besides an indicator of quantifying the cost of intermediation, bank spreads are closely related to the profitability of the bank.

Following Koeve (2003),<sup>18</sup> the profitability of the banking sector is gauged by two slightly different indicators, the definitions for which are given below:

$$P1 = ((\text{interest earned} + \text{other income} - \text{interest expense} - \text{other expense}) / \text{average assets}) * 100$$

$$P2 = ((\text{interest earned} + \text{other income} - \text{interest expense} - \text{other expense}^{19} - \text{provisions}) / \text{average assets}) * 100.$$

$$P3 = (\text{profit after tax} / \text{average assets}) * 100$$

Alternatively, the measures can also be re-written as under:

$$P1 = SW4 + ((\text{other income} - \text{other expense}) / \text{average assets}) * 100$$

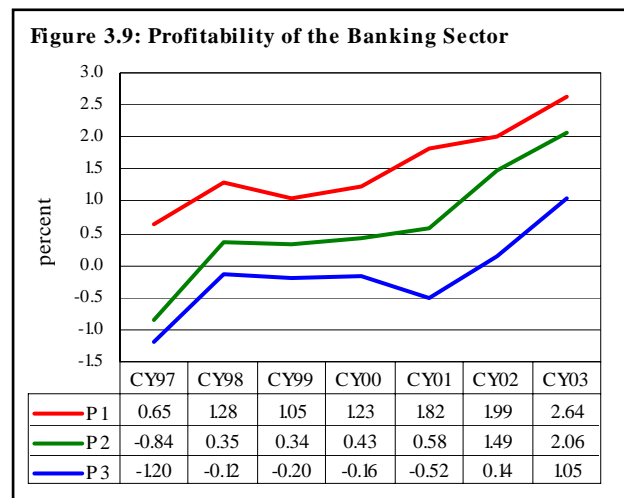
$$P2 = P1 - (\text{Provisions} / \text{average assets}) * 100 = SW4 + ((\text{other income} - \text{other expense} - \text{provisions}) / \text{average assets}) * 100$$

The above measures of profitability are calculated for the overall banking sector from CY97 to CY03 (see **Figure 3.9**). All three measures saw a persistent rise over the period of analysis; indicating improving health of the banking sector. However, while the improvement was continuous, the banking sector as a whole remained in loss up to CY01.

The gap among the alternate definitions of profitability highlights the effects of provisions and taxation on banking sector profitability. For example, excluding both the expense of provisioning and taxation, the banking sector remained profitable over the period of analysis.

A substantially higher gap between the P1 and P2 definition of profitability during the earlier years indicates that the banks had to set aside a considerable portion of their income to provide for non-performing assets. Actually, SBP persuaded banks to not only recognize their non-performing loans, but also to ensure an adequate level of provisioning against these loans. As a result, both the NPLs and the level of provisions witnessed a significant rise during the late 1990s. Keeping the alarmingly high level of the NPLs and its related cost in mind, SBP followed a multi-pronged policy to deal with the outstanding stock of NPLs and to stem the flow of new NPLs. The establishment of the Corporate and Industrial Restructuring Corporation (CIRC) 2000, Committee on the Revival of Sick Industrial Units (CRSIU), the Financial Institutions (Recovery of Finance) Ordinance, 2001, guidelines for the write-off of irrecoverable loans and advances, are some of the important steps taken to curb the growing menace of NPLs. The impact of all these policies is visible from the narrowing gap between these two indicators, which is a reflection of the declining cost of provision. The declining burden of NPLs is also evident from a decrease in both the *gross NPLs to gross advances* and *net NPLs to net advances* ratios over the same period. Specifically, the former ratio declined from 23.5 percent in CY97 to 17.0 percent by end-CY03 and the latter plunged from 14.1 percent to 6.9 percent only.

Taxation liability is another important component which continued to undermine the profitability of the banking sector, and which is represented by the gap between the P2 and P3 definitions of profit. A closer look at **Figure 3.9** reveals that banking system remained profitable for most of the years if



<sup>18</sup> Op. cit.

<sup>19</sup> Other expenditures include all administrative expenses and other expenses except expense on provisions and taxation.

the impact of taxation liabilities is excluded. However, this problem has now been resolved to a larger extent. The two most important steps in this direction are: (1) rationalization of the tax rate for the banking sector in line with the tax rate for the corporate sector; (2) exemption of tax on accrued interest on non-performing loans.

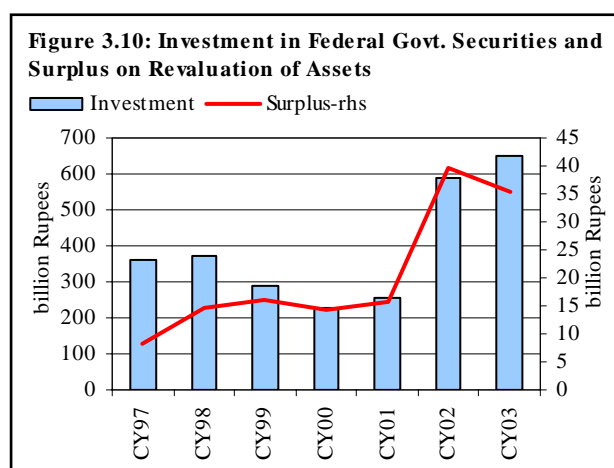
### 3.4 Performance Sustainability Issue

The above discussion regarding the changes in the ownership structure of the banking sector and their capital base, the cost of intermediation and profitability measures, indicates a number of positive developments. First, the concentration in the banking sector has declined by all measures over the period of analysis, particularly over the last three years. This suggests an increase in competition. Second, the capital base of the banking sector has been strengthened. In other words, the resilience of the banking sector to both internal and external shocks has significantly increased. Third, the cost of intermediation has not only declined, a convergence across different banking groups has also been observed. This, together with increased profitability of the banking sector is another welcome development. Abating the burden of NPLs is another significant development, as its presence threatened to weaken the banks' capital base and their profitability.

While the performance of the banking sector continued to improve over the period of analysis, particularly during last two years, the sustainability of this performance is questionable due to an increased exposure to market risk. A critical analysis of selected balance sheet components will provide a better insight into this issue.

#### *Surplus/Deficit on Revaluation of Assets*

The surplus on revaluation of assets (notional gains) has significantly increased during the last two years. Specifically, its ratio with equity capital (sum of paid-up capital, reserves and un-appropriated profits/loss) averaged at 46.5 percent for the last two years (CY02 and CY03) compared to an average of 22.8 percent for the period of CY97 to CY01. This massive rise in surplus on revaluation of assets was primarily driven by declining interest rates over the last two years and increased bank holding of medium to long term fixed income government securities like Federal Investment Bonds (FIBs) and Pakistan Investment Bonds (PIBs). Specifically, bank's investment in FIBs and PIBs has more than doubled to Rs 201.8 billion by end-CY03 as compared to Rs 95.5 billion in CY01. At the same time, the total investment of the banking sector in government securities (both with short and long-term maturity) jumped from Rs 255.2 billion in CY01 to Rs 646.8 billion by end-CY03 (see **Figure 3.10**).

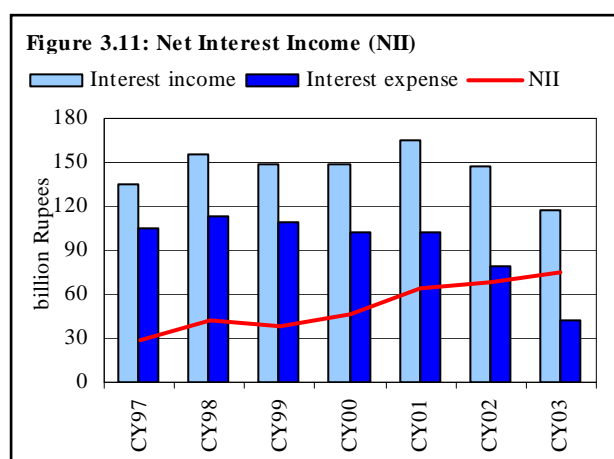


This increased exposure of the banking sector towards the fixed income government securities coupled with the reversal in long term interest rates could negatively affect the surplus in revaluation of assets: a significant component of the banks' overall equity. In this way, the evaporation of these notional gains will directly undermine the capital base of the banking sector. Another channel in which this can affect the performance of the banking sector is through profit and loss accounts.

#### *Composition of Income and Profitability*

A closer look at the sources of banking sector income and expenditures provide important insight on the sustainability of the remarkable profits recorded during the past two years. First, interest income of the banking sector in absolute terms saw a decline for the second consecutive year, which is

consistent with the declining interest rate scenario which prevailed over that period. While a corresponding decline in interest expense of the banking sector is also visible, the extent of the decline is much larger compared to the interest income. As a result, the net interest income (NII) continues to rise even in the presence of all time low interest rates (see **Figure 3.11**). In fact interest paid on the interest bearing liabilities (mainly the deposits and the borrowing) of the banking sector has been decreasing since 1999 despite the increase in deposits. As a result, the average interest paid on the deposits witnessed continuous decline even before the advent of the low interest rate regime (i.e. before CY02). This interaction between the interest income and interest expense together with declining average cost of deposits since CY99 suggests that the banking sector is maintaining its net interest income largely at the cost of the depositors.



Secondly, it is also important to mention the massive capital gains realized by the banks on investment in fixed income securities. These non-recurrent capital gains surged to Rs 19.1 billion by end-CY03 compared to Rs 5.7 billion in CY02 and an almost negligible amount in the previous years. Interestingly, exclusion of these capital gains (under the assumption of *ceteris paribus*) from the income of the banking sector reduces the return on average assets (before tax) from 1.9 percent to only 1.1 percent for CY03. This suggests that the profitability of the banking sector for the past two years seem to have heavily benefited from the capital gains booked on investments in fixed income securities. Reversals in interest rates may not only erode these capital gains, but will also discount the surplus on the revaluation of the assets (a considerable part of the overall equity).

In this backdrop, the banking sector is facing a significant challenge to sustain its present impressive performance, particularly in terms of its profitability. Nevertheless, the banking sector performance of CY03 is significantly sounder as compared to that of CY97 when the second phase of the banking sector reforms were initiated. Hence the banking sector is in a much better position to withstand both internal and external shocks. Profitability of the banking sector is likely to remain satisfactory in coming years. However, it is unlikely to exhibit sharp profitability surges experienced in the past couple of years.