2 Financial Infrastructure: An Assessment

This chapter discusses the various aspects of the regulatory and legal framework which serve as the essential pillars of support for the efficient working of the financial sector.

2.1 Reforms and Regulations – Recent Developments

2.1.1 Prudential Regulations for Banks and DFIs

Around the globe, the Banking sector is closely regulated and Pakistan is no exception. The Regulatory framework has undergone substantial changes along with financial liberalization and other developments in the financial sector,[1] particularly with reference to the financial sector reforms of the last few years.

Among other measures, SBP has undertaken a comprehensive revision of the Prudential Regulations to strengthen its regulatory framework, while keeping in mind the changing risk profile of the banking sector due to the diversification of banks' assets in new areas like Consumer, SME and Agriculture financing. As a result, three separate sets of Prudential Regulations have been issued[2] due to the substantial variation in risks associated with different segments of the economy.

The Prudential Regulations for *Corporate/Commercial Banking* are primarily focused on managing the risks associated with lending to the corporate sector. These regulations are broadly classified into four categories: (a) Risk Management; (b) Corporate Governance; (c) Know Your Customer (KYC) and Anti Money Laundering (AML); and (d) Operations. Regulations under all these categories have been prescribed keeping in mind the domestic and international requirements. While the existing regulations are revised from time to time in line with evolving business conditions, new regulations like KYC and Anti Money Laundering have been introduced to instill transparency in the operational framework of banks and DFIs.

Prudential Regulations for *SME Financing* and *Consumer Financing* are also classified into various sub-categories to address the risks inherent in specific business activities. However, it may be noted that these regulations primary address the Risk Management issues whereas regulations pertaining to other areas are governed by Prudential Regulations for *Corporate/Commercial Banking*.

The above regulations were further strengthened and aligned with the changing business environment during CY04. The most important developments in each set of Prudential Regulations[3] include:

1. ***Revaluation Reserves***: Under prudential Regulations these reserves were allowed to be a part of borrowers' equity for the first three years only from the date of asset revaluation. Subsequently, this restriction was slightly relaxed, as borrowers are now allowed to take advantage of fresh revaluation (see BPD Circular No. 4 dated February 9, 2004).
2. ***Reserve Building***: In an effort to strengthen the capital base of DFIs, these institutions are required to create reserve funds from their profits. It has been specified that DFIs are required to transfer at least 20% of their after tax profits to a reserve account until the reserve fund equals the

[1] For details, please see "Pakistan : Financial Sector Assessment 1990-2000", State Bank of Pakistan.
[2] Please see BPD Circular No. 35 dated October 28, 2003.
[3] Amendments in Prudential Regulations have been discussed in detail in "Banking System Review 2004", State Bank of Pakistan.

amount of paid-up capital. Subsequently, at least 5% of the after tax profits is required to be transferred to the reserve fund (see BPD Circular No. 15 dated May 31, 2004).

3. ***Minimum Capital Requirement***: Capital base of banks and DFIs has been further strengthened by increasing the minimum capital (net of losses) from Rs 1.0 billion to Rs 2.0 billion. Banks and DFIs are required to meet this new requirement in two phases: Rs 1.5 billion by December 31, 2004 and Rs 2.0 billion by end-December 2005 (see BSD Circular No. 12 dated August 25, 2004).
4. ***Revaluation Surplus/Deficit***: Massive investments of the banking sector in fixed-income government securities, along with the reversal in interest rates, have strong implications for the revaluation surplus/deficit account. To ensure transparency and in compliance with the International Accounting Standards, investments classified as "Held to Maturity (HTM)" are no longer required to be marked to market. Moreover, banks are not allowed to reclassify their investment holdings under HTM to other categories (see BSD Circular No. 14 dated September 24, 2004).
5. ***Housing Finance****:* In view of the escalating prices of real estate and the element of speculation associated with such transactions, financing from banks was restricted to the purchase of land/plot for the purpose of construction only (see BPD Circular No. 32 dated October 5, 2004).
6. ***Maximum Credit Limit***: The maximum limit for clean lending to individuals (generally through credit cards) is Rs 0.5 million. However, banks and DFIs are allowed to extend this maximum limit to Rs 2.0 million for their prime customers, with a clean track record, invariably strong repayment capacity and a moderate debt burden. Furthermore, the aggregate outstanding amount in this respect is capped at 10 percent of the total outstanding credit card portfolio at any point in time (see BPD Circular No. 32 dated October 5, 2004).

Besides the above amendments in the existing Prudential Regulations, a significant development is the introduction of a separate set of (draft) Prudential Regulations for Agriculture Financing.[4] These regulations aim to provide a broad standardized regulatory framework in which banks and DFIs can develop their own financial products specifically for the agriculture sector.

2.1.2 Financial Derivatives Business Regulations

With the increasing use of financial derivatives in international markets as a tool for hedging risks, financial institutions in Pakistan were allowed to undertake the business of financial derivatives subject to prior approval from State Bank of Pakistan for each specific transaction. Due to the increasing number of such transactions and with the objective of developing a full fledged 'Over the Counter' (OTC) financial derivatives market, SBP issued detailed "Financial Derivatives Business Regulations" vide BSD Circular No. 17 dated November 26, 2004. Under these regulations three types of derivatives transactions, including Foreign Currency Options, Forward Rate Agreements and Interest Rate Swaps are allowed.

Similar to the types of derivatives transactions, the entities eligible to enter derivatives transactions are also classified into three categories. Customers of financial institutions are categorized as *End User Entities* and are allowed to enter into derivative transactions to hedge their positions. It has been specified that while customers are allowed to hedge their position with more than one financial institution, their total hedge should not exceed the total exposures hedged. The other two categories are related to the classification of financial institutions into *Non-Market Maker Financial Institutions* (NMI) and

[4] Prudential Regulations for Agriculture Financing were posted on SBP's website in April 2005 for comments and suggestions, and will be issued formally soon.

Authorized Derivatives Dealers (ADDs). The former group of institutions (NMIs) is allowed to undertake derivative transactions to hedge their own position with ADDs. NMIs can also enter into derivatives transactions with the customers, but in order to do so they have to secure their position on a back-to-back basis with an ADD. Compared to NMIs, ADDs are expected to play an important role as Market Makers by enabling market participants to hedge their exposure in financial markets.[5]

2.1.3 Implementation of Basel II

Given the limitation of the Basel Capital Accord I (Basel I) with respect to differentiating among assets with varying degrees of risk, and to recognize the concept of 'operational risk' for the calculation of capital adequacy requirements, the Basel Committee on Banking Supervision (BCBS) has finalized a new capital accord known as Basel II. While the minimum capital to risk weighted assets requirement is kept unchanged at 8 percent in Basel II, the method of calculation for risk weighted assets has been made more risk-sensitive by changing the methodology for previously recognized risks in addition to the inclusion of new risks. The idea is not to change the average capital requirements, but to recognize and minimize the underlying risks for banks.

The overall structure of Basel II is primarily based on three mutually reinforcing pillars. The first pillar deals with the Minimum Capital Requirement and explains methodologies for calculating the required capital against credit, market and operational risks based on the risk management policies and practices of a financial institution. The second pillar is about the Supervisory Review Process. Supervisors can ascertain through a review process that banks have established their internal processes to ensure that their capital adequacy is commensurate with their specific risk profile and internal control environment. The third pillar is related to Market Discipline, which requires extensive disclosure from banks to ensure that market participants understand their risk profile and capital adequacy status.

Although implementation of Basel II is not mandatory even for the member countries, SBP has decided to implement Basel II in Pakistan due to its inherent strengths. In order to ensure a smooth transition from Basel I to Basel II, SBP has outlined a roadmap for its implementation in consultation with the stakeholders.[6] While a parallel run is planned to take place from July 1, 2006 to January 1, 2008, banks are required to use the Standardized Approach for the calculation of credit risk and the Basic Indicator Approach for operational risk from January 1, 2008. The Internal Ratings Based (IRB) Approach will be adopted from January 1, 2010.

2.1.4 Credit Information Bureau

Being a vital source of information on the credit history of borrowers, the role of a centralized credit information bureau (CIB) can hardly be over emphasized in any financial sector. A CIB helps lenders in evaluating risks more accurately, improve asset quality and reduce the cost of credit, in addition to increasing credit volume and profitability. As a part of financial sector reforms in the early 1990s, the State Bank of Pakistan established the Credit Information Bureau in 1992 to: (1) discharge its statutory Obligations;[7] (2) provide maximum information on existing credit facilities; and (3) track connected lending. Under the existing arrangements, CIB collects information from more than hundred financial

[5] For details, please see BSD Circular No. 17 dated November 26, 2004 and "Banking System Review 2004", State Bank of Pakistan.
[6] Please see BSD Circular No. 3 dated March 31, 2005.
[7] Under Section 25-A of Banking Companies Ordinance (BCO), SBP is required to gather information about outstanding loan facilities and make this information available to the financial institutions.

institutions[8] on all those loans and advances which are for an amount greater than or equal to Rs 0.5 million. This information pertains to a set of variables such as the outstanding loan amount, repayment status, write-offs, rescheduled amount if any, etc. Importantly, while all the information related to a borrower is available for the participating financial institutions, the name of the reporting financial institution is not disclosed.

In line with the development of the financial sector, CIB has also undergone substantial changes in its procedural framework, technology infrastructure and reporting requirements. Specifically, an online access to the CIB database was given to financial institutions with effect from April 25, 2003 which has greatly enhanced the efficiency of the credit appraisal process. Not only has this resulted in a reduction in the time required for retrieval of credit reports, but it has also decreased the time lag in the submission of data to SBP's CIB department, as now the financial institutions can submit the information through an online form.

As far as technology up-gradation is concerned, the capacity of servers has been enhanced; security features have been strengthened by installing firewalls and other measures have been taken to improve the quality of available information. Furthermore, SBP, with the help of Pakistan Banks' Association, is in the process of strengthening the CIB database, whose significance has increased even more with the expansion of banks' consumer finance and SME portfolio. The most striking feature of these developments is that the span of coverage has been extended so that facilities of *all* amounts are reported by the banks, as compared to the existing minimum amount of Rs 0.5 million. The State Bank issued relevant instructions to the financial institutions for this purpose in December 2004. Financial institutions are currently in the process of preparing to provide information on all credit facilities irrespective of the amount. Moreover, they are now required to submit separate credit reports for individuals and corporates under the new system. Most of these developments are in the process of being implemented and the project is in its testing phase.

2.2 Prudential Regulations for Microfinance Institutions

Prudential Regulations for Microfinance Institutions (MFIs) were introduced by SBP in October 2002. These regulations have been developed keeping in mind the specific nature of Microfinance transactions in comparison with commercial bank lending and are applicable on all Microfinance banks licensed by the State Bank of Pakistan. One of the important features of these regulations is the requirement of a Depositor's Protection Fund or scheme to be maintained by each MFI which would serve the purpose of mitigating risks for its depositors. Each MFI is required to allocate at least 5 percent of its annual net profits to this fund.

The maximum exposure on a single borrower is required to be within Rs 100,000, and MFIs are restricted from undertaking certain types of transactions, such as extending facilities for speculative purposes, for investing in real estate etc. Other regulations relating to operational activities are also specified in detail.

2.3 Legal Framework

2.3.1 (Draft) Payment Systems and Electronic Funds Transfer Act, 2005

Although the State Bank of Pakistan Act , 1956 authorizes State Bank to supervise payment system activities in the country, it is not geared to address risks which arise from automated transactions. The

[8] Financial institutions include Commercial Banks, Specialized Banks, Development Finance Institutions, Investment Banks, Leasing Companies and Modarabas.

(Draft) Payment Systems and Electronic Funds Transfer Act 2005 provides a legal framework for the supervision and regulation of payment systems and electronic funds transfers in Pakistan, alongwith minimum standards for protecting the rights of both the financial institutions and customers involved in any transaction related to electronic funds transfer. The salient features of the Act are summarized in this section.

The Act specifies that the State Bank of Pakistan, in exercising its powers as the central bank, is to address issues related to (i) systemic risk; (ii) the promotion of monetary stability and a sound financial structure; (iii) the interest of the public including market conditions and behavior; (iv) the safety, integrity, efficiency and reliability of the payment system or payment instruments, including security and operating standards and infrastructure arrangements; (v) the interests of the current participants of the payment system or users of the designated payment instruments; and/or (vi) the interests of persons who may want access to the payment system or may want to use the various payment instruments.

Under this Act, SBP is authorized to establish and operate one or more Real-Time Gross Settlement (RTGS) systems for the transfer of funds and settlement of payment obligations. Financial institutions providing funds transfer facilities will be required to retain a complete record of electronic transactions in electronic form for a specified period. The operator of the payment system will establish adequate governance arrangements which are effective, accountable and transparent, or which may be required by the State Bank to ensure the continued integrity of such a payment system. An operator of a payment system will be required to establish the following operational arrangements:

(i) rules and procedures setting out the rights and liabilities of the operator and the participant, and the financial risks the participant may incur;
(ii) procedures, controls and measures for the management of credit, liquidity and settlement risks, including rules determining the time when a payment instruction and a settlement is final;
(iii) criteria for participation in the designated payment system; and
(iv) measures to ensure the safety, security and operational reliability of the designated payment system, including contingency arrangements.

For each electronic funds transfer transaction initiated by a customer from an electronic terminal, the financial institution holding the customer's account will, directly or indirectly, at the time the transfer is initiated, make available to the customer documentation and proof of such transfer, clearly setting forth, as may be required by such transaction (i) the amount involved and date or value date associated with the transfer; (ii) the type of transfer; (iii) the identity of the customer's account with the financial institution from which or to which funds are transferred; (iv) the identity of any third party to whom or from whom funds are transferred; and (v) the location or identification of the electronic terminal involved. It is specified that any documentation required to be given to the customer who indicates that an electronic fund transfer was made to another person, will be admissible as evidence of such transfer and will constitute prima facie proof that such transfer was made.

2.3.2 The Financial Institutions (Recovery of Finances) Ordinance, 2001

This Ordinance covers all types of financing facilities and has greatly simplified the process of recovering outstanding dues from a customer in case of default by empowering financial institutions to liquidate available collateral, if any, without recourse to the court of law, once the required notice has been served

to the customer. Section 15 of the Ordinance refers to 'Sale of Mortgaged Property', and specifies in detail the actions that a financial institution can take in case of default in payment by a customer.

As opposed to the long and cumbersome process of previous years for filing suits in order to recover outstanding dues, promulgation of this Ordinance has served to expedite the recovery process for financial institutions, which not only saves them time and unnecessary expenses, but also encourages them to undertake lending facilities in good faith with the confidence of knowing that adequate legal infrastructure is in place to come to their rescue if needed.

2.4 Guidelines for Infrastructure Project Financing (IPF)

Guidelines for Infrastructure Project Financing were issued by the State Bank on July 23, 2005, with the purpose of facilitating banks and DFIs to undertake such transactions. The basic premise of these guidelines is *non-recourse* financing i.e. lending based solely on the assessment of the future income streams of the project for repayment of the project debt.

It has been specified that due to the large investments required for such projects and their long gestation period, these guidelines aim to help financial institutions in developing the requisite expertise in evaluating such financing cases.

In specific terms, these guidelines cover the Risk Management aspect of infrastructure financing by giving details of various aspects of the credit appraisal process for such financing, in addition to explaining in detail the funding needs of the various phases associated with Infrastructure Projects, and the associated monitoring requirements.

2.5 Liquidity Windows

Liquidity arrangements are one of the key elements of any financial sector, as they help financial institutions in settling their obligations, particularly when they are faced with liquidity problems. In Pakistan, two types of liquidity arrangements are in place: (a) banks can approach SBP's 3-Day Repo Window in its role as the lender of last resort, and (b) the conduct of Open Market Operations (OMOs) by SBP to manage liquidity in the market. These two facilities are discussed below.

2.5.1 SBP Repo Window

SBP provides liquidity to the financial institutions as a lender of last resort through its 3-day Repo Facility (Discount Window) at a predetermined Repo Rate (Discount Rate). Bank can avail this facility by offering unencumbered government securities like Treasury-bills, Federal Investment Bonds and Pakistan Investment Bonds. However, a bank approaching the discount window must not be a net-lender in the market on that particular day. Experience shows that banks usually avail this facility on an over-night (one day) basis due to the penal nature of the Discount Rate.

2.5.2 Open Market Operations

As a result of the financial liberalization reforms initiated in the early 1990s, OMOs have emerged as the primary instrument for the conduct of monetary policy. Presently SBP conducts OMOs to manage liquidity in the market according to its own liquidity forecasting estimates. There is no fixed schedule for OMOs, as these are conducted according to the liquidity position of the market. Besides liquidity, OMOs also help in controlling credit variables according to the Annual Credit Plan targets. Furthermore, in a

way, effective participation of banks in OMOs is ascertained by charging a penal rate at the discount window, and providing no remuneration on the excess reserves of the scheduled banks.

In addition to the above formal arrangements, Foreign Exchange Swaps and other forms of SBP interventions in Foreign Exchange Markets, SBP financing schemes for select items (Export Refinance Scheme, Long term Finance for Export Oriented Projects, and Scheme for financing Local sales and export of Locally Manufactured Machinery) and budgetary finance affect the liquidity position in the market. This is due to the fact that any financing transaction of the central bank injects liquidity in the market.

2.6 Institutional Risk Assessment Framework

The need for an effective supervision of the financial sector can hardly be over emphasized in a deregulated and liberalized environment. Increasing integration of financial sectors around the globe primarily supported by high capital mobility, magnified trade flows and increased use of technology, demands a continuous improvement in the surveillance mechanism. Banks and DFIs, which constitute around 70 percent of the overall financial sector are regulated and supervised by the State Bank of Pakistan. The soundness of these institutions is assessed on the basis of the CAMELS-S framework, which takes into account both quantitative and qualitative factors affecting the financial health of banks and DFIs. The continuous off-site surveillance of these institutions provides useful information about the respective risk exposures and subsequently a focused on-site inspection. In this way, besides highlighting emerging problems in financial institutions, off-site monitoring helps in the efficient use of scarce supervisory resources.

To further strengthen the supervisory mechanism, State Bank of Pakistan has developed an Institutional Risk Assessment Framework (IRAF) which is in the process of being implemented. Being technology driven, the framework is designed to ensure proactive monitoring of risks by increasing collaboration among the supervisory departments and an efficient use of all possible information available on banks and DFIs. IRAF consists of four basic inputs: (1) Compliance with Standards, Codes and Guidelines; (2) Supervisory and Regulatory Framework; (3) Financial Performance Condition; and (4) Market Information and Intelligence. The weights of these components in the overall assessment are 20, 25, 40 and 15 percent respectively.

For the first component, a compliance report with the provision of laws, regulatory and statuary requirements, and codes of various guidelines like corporate governance and risk management guidelines etc. are to be prepared by banks on a self-assessment basis. This self-assessment should be endorsed by the Board of Directors of respective institutions. Furthermore, SBP will verify this information during on-site inspections carried out by the Banking Inspection Department.

The second component includes findings of on-site inspections, off-site surveillance reports, compliance status reports and policy related information from various departments of State Bank of Pakistan. The third component takes into account the financial performance reports compiled from audited annual balance sheets, inspection reports, off-site surveillance reports and quarterly published accounts. The last component includes information from credit rating agencies, research reports and any other relevant information relevant.

Based on the above components, an institutional profile will be prepared which will be subject to continuous monitoring. Any institution below a certain level of rating will be moved to a 'Watch List' and require the initiation of 'Prompt Corrective Actions'.

2.7 Payment System

Payment and settlement systems have recently been the center of attention on a global basis. This is because of the rapidly changing dynamics of economic activities especially due to the use of paperless modes of payment and settlement. Given the variations in the regulation of payment systems across countries, it is virtually difficult, if not impossible, to settle payment (and default) issues among countries. Also, the invention of electronic money[9] raises questions about the supervision of issuers, the oversight of payment systems, and issues related to consumer protection and law enforcement.
Consequently, the Bank for International Settlements (BIS) issued the General Guidelines for Payment System Development in May 2005 (see **Box 2.1**) to address such issues. On the local front, as part of the

Box 2.1: General Guidance for Payment System Development (BIS)
This report, which includes 14 guidelines, aims to give assistance in and advice on the planning and implementation of reforms in the payment system as a whole. The planning and implementation of payment system development is a difficult task, due to its complexity and the varying approaches to reforms. Countries which promote new initiatives in their national payment systems generally look to the systems in other countries and to International Financial Institutions (IFIs) for information, advice and assistance. Safe and efficient payment systems are also critical for the effective implementation of monetary policy. The guidelines are summarized below:

1. Keep the central bank at the centre: due to its overall responsibility for maintaining a stable currency, the central bank has a central role in the development of the use of money as an effective means of payment.
2. Promote the role of a sound banking system: payment accounts, instruments and services available to end users are mainly provided by banks, which compete individually but often need to act cooperatively as a unified system.
3. Recognize complexity: planning should be based on a comprehensive understanding of all the core elements of the system and the principal factors influencing its development.
4. Focus on needs: identify, and be guided by, the payment needs of all users in the system and by the capabilities of the economy.
5. Set clear priorities: plan and prioritize payment system development strategically.
6. Implementation is key: ensure effective implementation of the strategic plan.
7. Promote market development: the expansion and strengthening of market arrangements is a key aspect of the evolution of the payment system.
8. Involve relevant stakeholders: encourage the development of effective consultation among relevant stakeholders in the payment system.
9. Cooperate with other authorities: effective payment system oversight by the central bank requires collaborative arrangements with other authorities.
10. Promote legal certainty: develop a transparent, comprehensive and sound legal framework for the system.
11. Retail – give more choice to more people: extend the coverage and choice of non-cash payment instruments and services available to end users by expanding and improving infrastructures.
12. Large-value business case leads, technology follows: develop a large-value payment system based primarily on the needs of financial markets and the growth in time-critical interbank payments.
13. Securities – plan securities and payment systems together: coordinate the development of the infrastructures for securities and large-value payments.
14. Retail, large value and securities – coordinate settlement: coordinate settlement processes for the core systems to effectively manage the interrelated liquidity needs and settlement risks among them.

Source : www.bis.org

[9] ***Electronic money*** is defined as a stored value, or a prepaid product in which a record of the funds or value available to the customer for multi-purpose use is stored on an electronic device in the customer's possession. This definition includes both prepaid cards and prepaid software products that use computer networks.

ongoing financial sector reforms, State Bank of Pakistan has posted on its website a draft of the 'Payment Systems and Electronic Funds Transfers Act 2005', inviting comments and suggestions from stakeholders. The purpose of this Act is to provide a legal framework for all electronic transactions, which are not covered by existing laws.

Another major development on this front is the recent launch of the NIFT e-Trust in May 2005, which will perform the functions of a certification authority in Pakistan (see **Box 2.2**).

Box 2.2: NIFT e-Trust

NIFT e-Trust is another initiative towards the modernization of payment systems in Pakistan. Ensuring security and safety of commerce and communications, addressing issues such as authentication, confidentiality or privacy, non-repudiation, and data integrity over the internet is its key objective. In line with its vision, it has established the first Certificate Authority (CA) in Pakistan, paving the way for Pakistani organizations to safely and securely operate online businesses under a Global Trust hierarchy. NIFT e-Trust is a global affiliate of VeriSign, Inc., and licensed in Pakistan as a select provider of digital trust services that enable everyone, everywhere, to engage in commerce and communication with confidence.

Personal Digital IDs

In the online world, sending an e-mail message is like sending a postcard: it is easy to intercept and read as it travels across the Internet. A digital ID can safeguard such communications, which is now being provided by NIFT e-Trust. VeriSign MPKI is a fully integrated Public Key Infrastructure (PKI) managed service, which uses digital certificates to authenticate members of a user group and to secure intranet, extranet, Virtual Private Network (VPN), and e-mail applications by providing flexibility and security. MPKI allows issuing digital certificates to identify members of an authenticated user group. This ensures that only authorized employees or customers are able to access the valuable information contained in intranet or extranet.

Online purchases have become more convenient on a global basis. However, potential consumers need secure and legitimate means of transactions. A Server Certificate can deliver end-to-end transaction security on communications. It protects communications over the web through the industry-standard Secure Sockets Layer (SSL) technology. Each certificate comes with the unique seal of authenticity, Secure Site Seal.

Enterprises are relying on cost cutting, timesaving extranets and intranets for exchanging information with customers, partners, and employees through applications such as supply-chain management, and online banking and trading. An efficient and cost-effective solution is the use of Digital Certificates. Based on public key encryption, digital certificates serve as unique online credentials, authenticating the identity of each device or device user and identifying privileges and attributes for authorized access to private online information.

Virtual Private Networks (VPNs) allow a company to extend their local network to connect branch offices, remote users, business partners and customers via the Internet. As with all other types of networks, VPNs are also vulnerable to attack by hackers and cyber-criminals. IPSec (Internet Protocol Security), an industry standard, enables these networks to be secured through encryption, providing confidentiality and integrity. Trusted IPSec is a managed digital certification service that takes core PKI solutions and integrates them into VPNs such as intranets and extranets, based on the IPSec industry standards.

Source: www.niftetrust.com

In the last few years, SBP has taken various steps and measures towards the improvement of the payment and settlement system in the country. One of the major developments in this regard is the agreement between ATM Switch service providers (MNet and 1-Link) to provide standardized services to customers,[10] for a nominal fee. Commercial banks have been asked to provide daily balances of ATM

[10] For details, please see "Pakistan: Financial Sector Assessment 2003", State Bank of Pakistan.

transactions which would reduce customer complaints. SBP is also giving a lot of emphasis on ensuring a standardized procedure, which is important for the smooth running of the payment system.

2.7.1 Non-cash Payment System

Along with the increased pace of economic activities during FY05, the volume of non-cash transactions have grown substantially over the previous year. The amount has been steadily increasing and the cumulative volume of non-cash transactions reached Rs 65.2 billion by end-CY04, with an incremental amount of Rs. 36.1 billion by end-June CY05. The number of transactions has also grown substantially (see **Table 2.1**). It is expected that the announcement of 0.1 percent tax in the Federal Budget 2005-06 on cash withdrawals of more than Rs 25,000 from banks would accelerate the use of non-cash transactions. For paper-based transactions, the National Institutional Facilitation Technology (NIFT), as a major contributor in clearing services, has made considerable progress in providing services beyond the major cities of the country; it is envisaged that it will complete the grid of automated clearing by installing facilitation centers in all major cities of Pakistan by end 2006. NIFT also provides the net balance of the banks by the end of the day, which is finally settled in respective banks' accounts maintained with SBP. The statistics on clearing-house turnover are given in **Table 2.2.**

Table 2.1: Non-cash Transactions

(Amount in billion Rupees, numbers in million)

	CY04[1]	H1-CY05
Amount	65.28	36.14
Numbers	237.54	126.47

[1] This data is available from Q1-CY04.

Table 2.2: Clearing Activities

Year (end June)	Cheques cleared (million No.)	Value of cheques cleared (billion Rs)	Total no. of accounts (million No.)	Chequeable deposits (million No.)	Cheques cleared /Chequeable deposits
FY98	22.7	3,023.1	30.0	28.4	0.8
FY99	27.8	4,098.3	31.1	28.7	1.0
FY00	29.6	4,900.4	28.8	27.0	1.1
FY01	30.4	5,631.7	27.8	26.6	1.1
FY02	33.8	6,119.4	28.3	27.4	1.2
FY03	40.4	7,654.7	28.8	27.7	1.4
FY04	46.3	10,082.8	28.5	27.9	1.7
H1-FY05	26.2	6,403.5	27.4	26.9	1.0

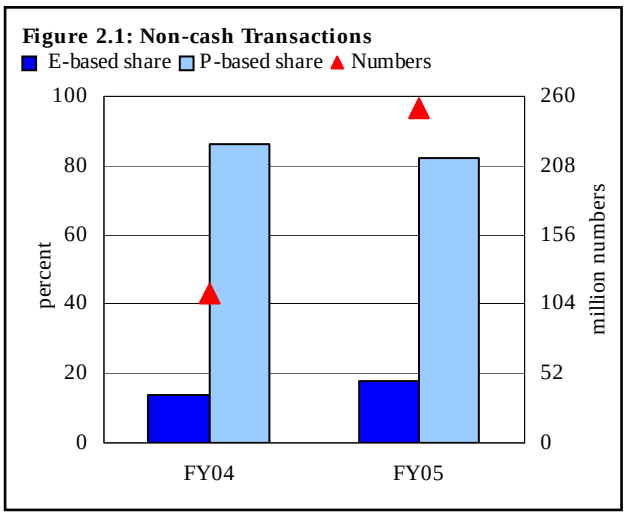
NIFT provides services to all 35 commercial banks and their branches where NIFT centers have been established. NIFT plans to provide solutions to support cash collection, payments by cheque, establishment of payment booths and payments through internet.

NIFT has already automated three of the largest utility companies[11] in the country at Karachi, Lahore and Islamabad, servicing over four million utility consumers. It has also created facilities for processing cash payments made at designated branches of banks and post offices; besides providing processed data for updating consumer records. Moreover, NIFT has also placed drop boxes in branches throughout the city to assist in payments by cheque and other instruments. NIFT is now planning to establish an internet facility for bill payments. Besides supporting credit cards, this facility would involve payments from customer's bank accounts; this direct debit will be implemented through NIFT's clearing services.

[11] SSGC, SNGPL and IESCO.

The share of electronic-based (e-based) transactions is continuously on the rise. The number of e-based transactions increased from 15.4 million by end-FY04 to 45.5 million by end-FY05. Though this rise is not significant in terms of its share in non-cash transactions, it is encouraging nonetheless (see **Figure 2.1**). However, most of the e-based transactions are significantly smaller in volume compared to paper-based (p-based) transactions. The very reason for this trend is the lack of a legal framework for e-based transactions, especially in case of disputed issues. Also, the infrastructure for e-based transactions is not yet fully-equipped to provide necessary arrangements for efficiently carrying out electronic transactions. Once the legal framework for electronic transactions is in place, followed by the establishment of the infrastructure to facilitate such transactions, the use of electronic modes of payments would definitely be accelerated.

Figure 2.1: Non-cash Transactions



2.7.2 Electronic Transactions

Infrastructure

The trend of linking bank branches to an online network is on the rise. During H1-CY05, 422 more bank branches have been linked to an online network, increasing the total to 2,897 online branches, out of 7,019 branches. Banks have also installed 242 new ATMs across the country during this period, bringing the total number of ATMs to 1,028. It is important to note that both ATM switch providers serve all ATM cards. With this interconnectivity between the two ATM switch providers, the number of ATMs available for ATM card holders has effectively increased. This encourages the increased usage of debit, credit and ATM cards, which is reflected in the rapidly growing number of card holders, which increased from 1.8 million at end-CY04 to 4.17 million by end-June CY05. The details of the various cards and values of transactions are given in **Table 2.3**.

Table 2.3: E-banking Statistics
(Value of transactions in million Rupees, number of transactions and number of cards in thousands)

	CY04	H1-CY05
Number of online branches	2,475	2,897
Number of ATMs	786	1,028
Number of ATM/Debit cards	1,875	4,173
Number of ATM transactions	23,906	14,694
Value of transactions	119,902	76,083
Number of debit card transactions	337	311
Value of transactions	483	541
Number of credit card transactions	9,949	6,686
Value of transactions	34,591	22,346

Another important development is the interchangeability of different cards, i.e. a credit card can be used as an ATM card or an ATM card can be used interchangeably as a debit card. The old cards, which served only one purpose, are now being replaced by new ones in order to accommodate all such transactions. Moreover, the introduction of chip-based smart cards is a sign of advancement in e-based transactions.

ATM, Debit and Credit Cards

As a result of these developments, e-based transactions are growing at a rapid pace. The usage of ATM cards for cash withdrawals is the largest among all e-based transactions, followed by point of sales transactions. The number of ATM transactions was 14.7 million during Jan-June CY05, showing a 61

percent rise in the first half of CY05, in comparison with CY04 transactions.[12] In terms of volume, there has been an increase of 63 percent; reaching Rs 76.1 billion during the same period of CY04. The volume of point of sales transactions[13] reached Rs 22.9 billion during Jan-June CY05, reflecting a 65 percent growth in just two quarters of CY05. The number of transactions was nearly 7 million during Jan-June CY05 compared to 10.3 million transactions during CY04.

ATM cards are also used for funds transfers.[14] Though the volume and number of such transactions are not significant in terms of their share in e-based transactions, their rising pace is encouraging nonetheless. Similar is the case of online banking where the number and volume is still small, however, the growth momentum of online transactions indicates the increasing awareness of its utility, both in terms of cost and time savings.

Interbank Transactions

The wholesale inter-bank transactions and cash movement related to transaction in government securities continue to be settled through a book-based manual entry system, which involves a time lag between the execution of a transaction and its final settlement at SBP. There are some risks associated with this mechanism like credit risk, liquidity risk, and settlement risk. In case of the failure of one bank to meet its obligations to the other might result into an even bigger risk called systemic risk. In order to overcome these risks, SBP will soon implement a Real Time Gross Settlement (RTGS) system for large value inter-bank payments. In RTGS, the payment information and settlement takes place simultaneously on gross basis, and thus prevents settlement failures and potential systemic consequences. In other words, the banks (holding accounts with SBP) would be able to operate their accounts in real time. The project is expected to be completed by the end of 2005 (see **Box 2.3**).

Almost all of the transactions and their settlement in capital markets are computerised. All the three stock exchanges have introduced computerised trading systems, which are linked to the National Clearing and Settlement System (NCSS) managed by the Central Depository Company (CDC). The NCSS then provides the net position of different members to CDC, which is an electronic book keeping system. Similarly, the transfer of shares/stocks is being settled through the Central Depository System (CDS), also controlled and operated by the CDC. The transfers in CDS are also routed through NCSS for clearing, which transmits the net position of different account holders to CDC, where transfers of equities are finally settled.

A comparison of e-money products in various South Asian and South East Asian countries is given in **Box 2.4**.

[12] The information collected by SBP's Payment System Department in this format is available from Q1-CY04.
[13] Debit card and credit card transactions.
[14] Presently, an amount can be transferred from one to another account through an ATM if both accounts are in the same bank.

Box 2.3: Real Time Gross Settlement System (RTGS)
In contrast to a manual settlement system which involves a time-lag between payment instructions, clearing and settlement on a net basis, the payment instruction, clearing and settlement take place simultaneously in RTGS on gross basis. Therefore it prevents settlement failures and potential systemic risks. In other words, the banks (holding accounts with SBP) would be able to operate their accounts in real time without any time-lag. The RTGS system affects the interbank funds transfers continuously on transaction to transaction basis throughout the processing (or working) day. Once the payment is settled, it may not be revoked. All scheduled banks, SBP and NIFT (including clearing houses) are stakeholders of the RTGS system. In this system, real time account information will be available as all transactions will be communicated through an e-based mechanism.

For example, the electronic credit instruction by bank 'A' to bank 'B' will be settled through RTGS at SBP, by debit and credit of these banks respectively, and then confirmed to both banks in real time. This transaction neither requires physical delivery of credit instructions nor the TT transfers between SBP BSC offices. Also, all NIFT clearing centers will report clearing results directly to RTGS.

As a result, real time settlements will increase the intraday liquidity requirement of the banks, which will be provided by SBP on the basis of a pre-specified arrangement. This structural change in funds transfer mechanism needs a proper legal framework, which can authorize these transactions. For this purpose the draft of the Payment Systems and Electronic Funds Transfer Act 2005 has already been issued for comments from the stakeholders. Also, RTGS rules and regulations are under review.

An important part of RTGS system implementation is the awareness and readiness of the stakeholders. They must have an understanding of the various sub-systems of the RTGS as well as the risks of e-based transactions. Moreover, the infrastructure for an effective RTGS requires uninterrupted power supply, high-speed telecommunication and secured internet communications. It has been proposed that SBP should use SWIFT and private networks in parallel as an alternate to RTGS which will work as substitutes in case of any interruption. RTGS in Pakistan is named "PAK-CRISP PRISM" and the proposed date to go live is November 15, 2005.

2.8 Voluntary Pension System Rules, 2005

In order to promote the role of Private Pension Schemes, SECP has introduced a set of rules called the Voluntary Pension System Rules, which were implemented on January 27, 2005. These rules authorize a Life Insurance company or an Asset Management company to register themselves as Pension Fund Managers to manage the contributions made by or on behalf of participants in pension funds. As a Pension Fund manager, these companies will be obliged to manage the assets of the pension fund, with full record-keeping responsibilities.

It has been specified that such Pension Funds can be in the form of a unit trust scheme, and consist of equity, debt and other sub-funds.

The approved Pension Fund Mangers are required to invest a seed capital of Rs 50 million for each sub-fund of the pension fund for a minimum period of 3 years. This condition is subject to change based on whether the Pension Fund remains adequately solvent during this period.

The eligibility criterion of the participants, or contributors, to such a fund, has been specified in detail in these rules. Eligible persons themselves along with their employers, if any, shall be allowed to contribute into one or more pension funds subject to the limit prescribed by the Income Tax Ordinance.

Contributions from an eligible participant will be invested in the sub-funds at the Net Asset Value notified by the Pension Fund Manager. The allocation of the contributions between the various sub-funds

shall be in accordance with the prescribed allocation policy by SECP. The amount of the contribution used for the purchase of the units of any sub-fund shall depend on the percentage specified in the prescribed allocation policy selected by the participant.

The Rules restrict the Pension Fund managers from taking over the management of another Pension Fund without the approval of SECP, to accept deposits from another Pension Fund, or from using the assets for investment in real estate. The procedure for the transfer of funds from one Pension Fund to another is also laid out.

It has been specified that on the retirement of the participant, all the units of the sub-fund in his credit shall be redeemed at the prevailing net asset value, with the option of withdrawing upto 25 percent of the amount as cash, while the remaining amount can be used to purchase an annuity policy from a Life Insurance company, or the participant can choose to enter into an agreement with the Pension Fund Manager to withdraw from the remaining amount monthly installments till the age of seventy-five years or earlier, according to the income payment plan.

A participant can also withdraw funds prior to retirement by redeeming the units of the sub-fund to his credit.

A Pension Fund manager is allowed to appoint an investment advisor, to deal in and enter into transactions in securities on behalf of the Pension Fund Manager. For every pension fund, the Pension Fund manager is required to appoint a trustee, which can either be a scheduled bank, a trust company which is a subsidiary of a scheduled bank, a foreign bank operating as a trustee internationally, or a central depository company. Moreover, these pension funds will be subject to a detailed audit on a periodic basis.

Performance of a Pension Fund Manager will be assessed on the basis of the index of the weighted average investment return of all the sub-funds according to which a benchmark will be established to measure the investment return in the sub-funds during any particular year.

2.9 Conclusion

In this chapter, efforts have been made to provide a brief review of the financial infrastructure which is of utmost important for well-functioning financial institutions. It is to be noted that the review is not exhaustive, and is largely focused on the recent developments in the regulatory framework of both SBP and SECP in providing an enabling environment for a safe and sound operation of financial institutions.

Box 2.4: Peer Country Comparisons[1]

By virtue of growing technological advancements in recent times, numerous financial products have been introduced in various countries. The usage of such instruments has facilitated the transactions and payments process across geographical borders. Since these developments have important implications for the regulatory framework of central banks, the Bank for International Settlements (BIS) recently conducted a survey of some countries in March 2004. Some of the results for selected countries are discussed here.

Pakistan: E-money products currently do not exist in Pakistan. However, single purpose prepaid cards are already being marketed by retailers in the telecommunications and oil marketing companies. Banks in Pakistan use franchised credit cards such as Visa, Master Card, Maestro and American Express. Besides ATMs and debit cards, some of the banks in Pakistan have also introduced internet banking, funds transfer and acceptance of utility bills through ATMs. Two banks have also introduced chip-based cards. The State Bank has also published the proposed e-money Act in 2005 in order to frame a relevant legal structure.

Indonesia: Indonesia does not have any card-based products at the moment; however there has been some development in the area of card-based prepaid products. E-wallet was introduced in October 2001 by an Indonesian bank in cooperation with Visa International. This is a prepaid and multi-purpose product which can be used at any merchant outlet both within and outside the country. Moreover, at present there are about seven banks providing internet banking services with informational and transactional services. Bank Indonesia monitors the development of electronic means of payment, and has the authority to determine the usage of payment instruments.

Malaysia: The banking industry's MEPS Cash (e-money scheme) was initially launched on a commercial pilot basis in September 1999 in Kuala Lumpur, which can be used for retail purchases of goods and services and is re-loadable at most of the participating banks' ATMs. The MEPS Cash scheme is operated by a payment consortium owned by 12 domestic banking institutions. The MEPS is a payment multipurpose card (PMPC), which contains three applications, namely ATM, debit ePOS and MEPS Cash. At present, more than 9,000 terminals are able to accept MEPS Cash transactions. In addition to MEPS Cash, a non-bank operator has introduced a limited purpose e-money scheme, the Touch 'n Go card, mainly for payments at highway toll plazas. Network-based e-money schemes are still in the early stages of development. Internet payments are mainly driven through the banking channel. The Central Bank of Malaysia has taken the approach of allowing banking institutions to provide transactional internet banking facilities in phases. Effective from January 1, 2002, all banking institutions, including locally incorporated foreign banks, were allowed to provide a transactional internet banking service. The Central Bank of Malaysia issued the Guidelines on Internet Banking in June 2000, outlining several minimum requirements, such as security arrangements, the involvement of banks' senior management in internet banking, and clear terms and conditions of service. There were 1.3 million (5.4 percent of the total population of Malaysia) individual internet banking subscribers by the second quarter of 2003. In response to the growth in e-commerce, the Central Bank of Malaysia is working with MEPS to develop a national multi-bank payment infrastructure known as the Financial Process Exchange (FPX) to facilitate online payments for e-commerce transactions. The legal framework for regulating the issue of card-based e-money or multipurpose stored value cards is contained in the Payment Systems Act 2003 (PSA).

[1] Source: Survey of developments in electronic money and internet payments, conducted by CPSS, BIS.

Philippines: The Central Bank of Philippines defines e-banking as a system which enables bank customers to have access to banking products and services through a personal computer (using direct modem dial-in, internet access, or both) or a mobile/non-mobile phone. E-money products are intended to be used as a general, multipurpose means of payment. Some banks have started to introduce card-based e-money products that are aimed at facilitating retail payments and tapping the enormous commercial potential of the internet. Presently, there are five stored value cash cards in the market, issued by four Philippine banks. Two multipurpose cash cards are issued by non-banking institutions. Stored value cards compete directly with notes and coins for making retail payments and can, therefore, reduce currency in circulation. Although at present there is no specific law for e-money, the E-commerce Law serves as the basic legal framework for the recognition and use of electronic commercial and non-commercial transactions. Subsequently, the existing regulations were refined in order to fast-track the procedure for processing electronic banking applications. While there are regulations governing the delivery of electronic banking services, there is at present no specific regulation governing the issuance of electronic money. It may be necessary to revisit the provisions of existing laws to determine whether they adequately address major issues regarding the treatment of e-money and supervision of the issuers of e-money. The real-time gross settlement Philippine Payment System (PhilPaSS) was fully implemented on December 5, 2003 and covers Megalink (Network) transactions.

Sri Lanka: In 1998, one of the leading domestic banks launched the SMARTCASH scheme (electronic purse) to enable cardholders to make payments at retail outlets where card readers had been installed. This scheme experienced a setback due to various reasons, and arrangements are now being made to reactivate it. Currently there are no network-/software-based schemes. Eight banks have implemented internet and phone/mobile banking schemes, while one bank has introduced phone banking without internet banking. These schemes provide a range of banking services such as transfer of funds, settling of utility and credit card bills, account balance enquiries, cheque books requests, and availability of financial information through phone /mobile/ telebanking facilities. At the end of September 2003, banks provided phone and internet banking services to 0.5 million customers. There is no specific law governing electronic transactions. Transactions in e-money/internet/mobile banking schemes are covered by contract law until the proposed Payment Act and Electronic Transaction Act are passed by parliament.

India: The Reserve Bank of India (RBI) has partnered a multi-application smartcard project under the aegis of the Ministry of Communications and Information Technology to run another pilot project on the use of multi-application smartcards in the country. Three banks have been given permission by the RBI to issue prepaid multipurpose cards. A few banks allow withdrawal of cash from ATMs using the prepaid card. Currently, there are no network- or software-based e-money schemes in existence. Some banks in India have started providing services via the internet. Guidelines on internet banking have been issued to banks which they are required to observe when providing internet-based banking services to their customers. The internet channel is also being used for various banking and other services including railway reservations, retail purchases, etc where the instruction is given electronically and, based on the instructions, the account of the customer is debited and credit passed on to the service/goods provider. Banks are in the process of integrating the internet banking services being offered into the RBI Electronic Funds Transfer (RBI-EFT) system, facilitating transfers of funds across accounts with other banks. The Negotiable Instruments Act has been amended to provide recognition of e-cheques. At present four banks in India are issuing smartcards. As a result of the promulgation of the Information Technology Act (2000) and subsequent amendments, electronic modes of payment now receive explicit recognition. Amendments to the Negotiable Instruments Act were passed in November 2002, giving legal recognition to cheque truncation and e-cheques. PKI is the most favored technology.