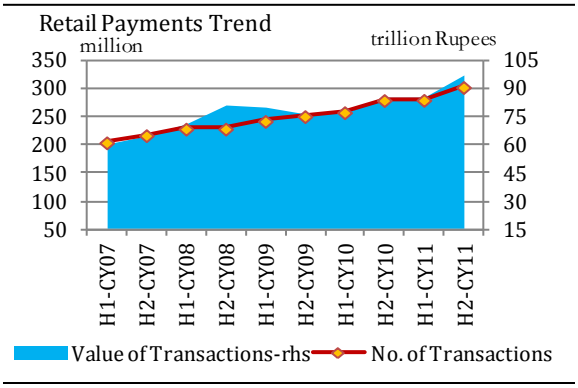
Chapter 7 Payment Systems

During the period under review (Jan-June 2011), the amount transacted through retail payment system grew by 14 percent (YoY) against 11.6 percent in the corresponding period last year. Number of retail transactions (paper based and electronic) also witnessed a YoY increase of 8.2 percent. In terms of volume, share of e-banking transactions has gained momentum, reaching 42 percent by June-11. However, in terms of value, retail payments are still dominated by paper based transactions (particularly through cheques), with 86 percent share in all transactions settled. Large value payment system in Pakistan has become efficient and more reliable with the launch of Pakistan Real time Interbank Settlement System (PRISM). During H1-CY11, PRISM handled 175.4 thousand transactions worth Rs. 44.8 trillion, which are 15 percent higher in volume and 16 percent higher in value when compared with the corresponding period last year.

Figure 7.1.

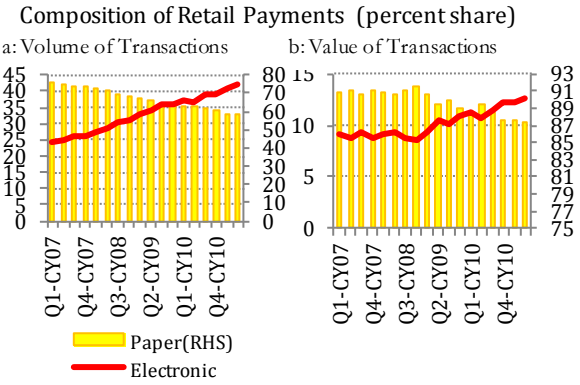


Retail Payments

Retail payment transactions maintained double digit growth

Retail payment systems are used for low-value transactions to support the exchange of goods and services in an economy. In Pakistan, the retail payment landscape is dominated by cash transactions, followed by paper based[1] and e-banking modes of payment. During the period under review (H1-CY11), the amount transacted through retail payment system grew by 14 percent (YoY) against 11.6 percent in the corresponding period last year. The number of retail transactions (paper based and electronic) increased to 303.2 million, witnessing a YoY increase of 8.2 percent *(Figure 7.1).*

Figure 7.2



...with electronic modes gaining share in volume

Rapid improvements and growing application of telecommunication, information technology and security systems have revamped the retail payment services, making e-banking a more efficient and reliable mode of payment. In Pakistan, the last decade has seen the emergence and acceleration in use of e-banking as an alternative to the traditional paper based instruments. Consequently, in the total volume of retail payments, the share of e-banking has reached 42 percent in June-11, from 25 percent in early 2007(*Figure 7.2*).

However, in terms of value of transactions, retail payments are still dominated by paper based modes, which contributed 87.6

[1] Cheques, pay orders, demand drafts, telegraphic transfers, etc.

Figure 7.3

Composition of Paper Based Transactions

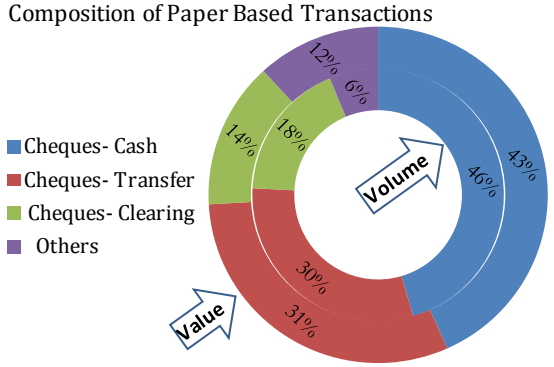


Figure 7.4

Composition of E-Banking Transactions

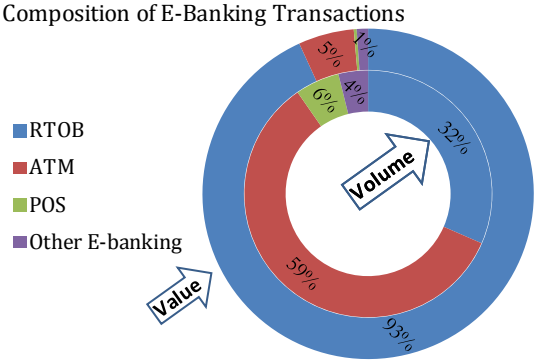
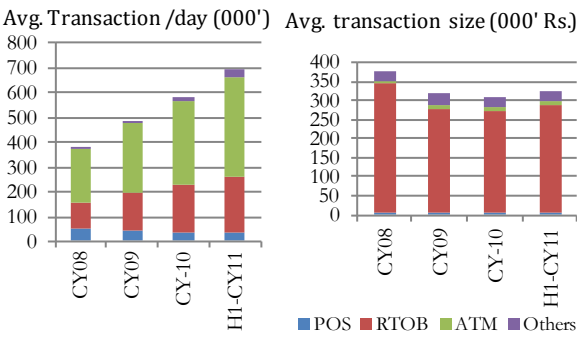


Figure 7.5

Trends in E-banking Transactions.



percent of the amount settled during H1-CY11. The lower value per transaction through e-banking is primarily on account of transaction limits applicable on these modes to ensure their safety and security.

Use of cheques dominates paper based transactions

Within paper based instruments, transactions through cheques dominate the volume as well as the amount of transactions, and are being used for cash withdrawals, fund transfer between accounts as well as between banks (through clearing). During H1-CY11, cheques' share in total number of paper based transactions was around 88.1 percent, with 93.7 percent share in terms of amount transacted. Other paper based instruments like pay orders, demand drafts and telegraphic transfers, despite their minimal share, have been an essential component of payment system catering to special needs of the customers (*Figure 7.3*).

...while RTOB accounts for bulk of the e-banking transactions

The breakup of electronic based transactions reveals that Real Time Online Banking (RTOB) accounts for 93 percent of the value of all transaction in contrast to its significantly lower share (32 percent) in number of transaction (*Figure 7.4*). In terms of volume (number of transactions), ATMs with 59 percent share have been the most popular mode, though their share in value of transactions remain marginal.

Data on average size of transactions offers another look at the role of RTOB and ATMs in facilitating various retail and business transactions. During H1-CY11, average size of transactions through RTOB amounted to Rs. 282 thousands, in comparison to average transaction size of Rs. 8.8 thousands through ATMs and Rs. 4.7 thousand through POS (*Figure 7.5*). The significant size of RTOB transaction points to the fact that this component of electronic banking is mainly being used by the corporate sector.

However, benefits of e-banking are not confined to the corporate sector as growing presence of ATMs have facilitated its widespread use by the general public (*Table 7.1*). Use of ATM has been on a rising trend, thanks to the increase in types of financial services being offered through ATMs like fund transfers, cash deposits and utility bills payments. Cognizant of growing role of ATMs in electronic modes, SBP has aimed to ensure efficient functioning of ATM network in Pakistan by

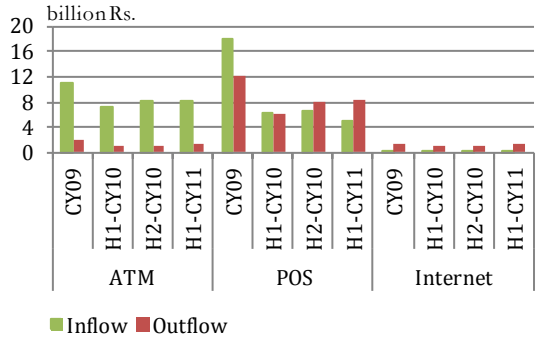
Table 7.1:

E-Banking Infrastructure

	CY09	H1-CY10	H2-CY10	H1-CY11
Point of Sale (POS)	50920	52049	44383	37232
No. of On line Braches	6587	6667	7036	7416
No. of ATMs	4217	4465	4734	5200

Figure 7.6

Cross Border E-Payments



issuing guidelines from time to time to streamline the functioning of the networks. Specifically, guidelines about the ATM operations were amended with a view to segregate the responsibilities of various stake holders towards automatic credit to customers' accounts.[2]

Other modes of e-payment[3] are also gaining currency in the public, though their role and contribution remains limited so far. In particular, mobile and internet banking is witnessing a rapid acceptance due to the convenience in their use and increasing variety of services being offered through these modes. Mobile banking, apart from being important for its convenience value, can also prove instrumental in helping offer the banking services to an otherwise largely under-served market in rural areas. During H1-CY11, transactions through mobile banking witnessed a threefold increase (YoY) with amount of payments increasing twofold. Likewise, the volume and value of internet banking registered a growth of 51 percent and 66 percent respectively since June-10.

Use and presence of POS terminals on a declining trend

Slowdown in economic activity over the last few years is reflected in declining trend in Point of Sale (POS) terminals as well as payment activity through this mode (*Table 7.1*). This is also in line with declining credit card activity for past few years. Notably, amount of credit cards has gone down from 1.6 million in Dec-09 to 1.38 million by Mar-11.

Recent trends in cross border e-payments also exhibit a transformation in terms of inflow of funds as the share of POS transactions have come down from 61 percent in CY09 to 37.6 percent in June-11 (*Figure 7.6*). This decline is attributable to both declining number of POS terminals as well as the growing acceptability of international credit cards on local ATM networks that has prompted the shift from POS towards ATM transactions.

Large Value Payments

RTGS has transformed the large value payment system

Because of their sytemic importance, large value payments systems have been a key concern of the central banks over the

[2] PSD Circular Letter No. 2 /2010 dated July 8, 2010.

[3] Call centers, mobile and internet banking.

Figure 7.7

Volume and Value of Payments in PRISM

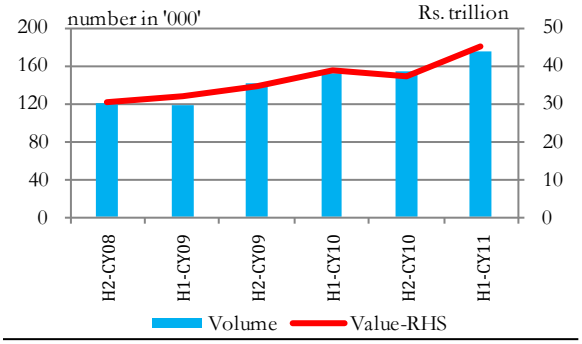


Figure 7.8

Average Daily Transaction in PRISM

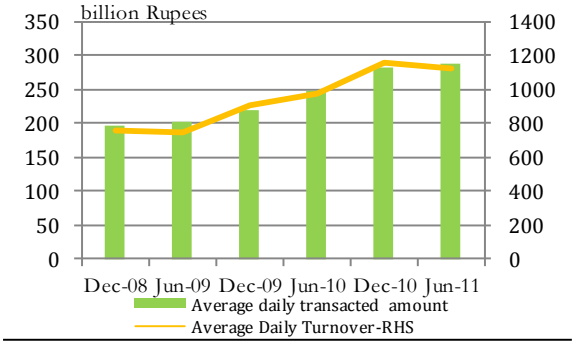
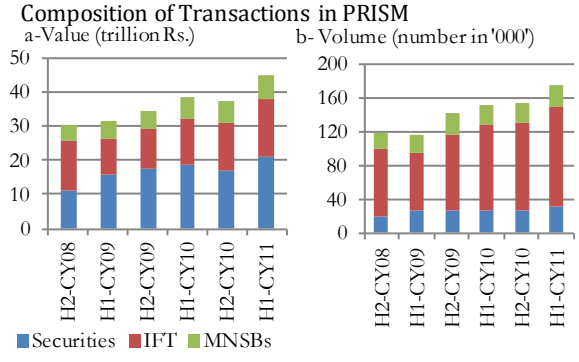


Figure 7.9

Composition of Transactions in PRISM



world. In Pakistan, keeping in view the global trends in payment system development and the growing payments market in the country, SBP took the decision to implement the Real Time Gross Settlement Sysmte (RTGS), resulting the launch of Pakistan Realtime Interbank Settlement System (PRISM) in Jul-2008. Since then, it has been performing smoothly as the system has been able to handle large volume of transactions through queue management, gridlock resolution mechanism and Intra-day Liquidity Facility (ILF)[4]. While historical data of system availability is not available, statistics since mid-May 2011 reveal that system availability on average remained around 96.55 percent and the major reason for reported downtime had to do with the securities settlement interface of PRISM, namely DEPOX.

...with both value and volume of payments recording double digit growth

During H1-CY11, PRISM handled 175.4 thousand transactions worth Rs. 44.8 trillion, which are 15 percent higher in volume and 16 percent higher in value when compared with the corresponding period last year (*Figure 7.7*). The system settled an average of 1,125 transactions of Rs. 287 billion on daily basis *(Figure 7.8).* These daily averages are a reflection of the significance of PRISM as a large value payment system.

Not only are the turnover and value of transactions significantly higher in PRISM, the transactions being settled are of critical nature too. Generally, the transactions in PRISM can be categorized into (i) Interbank Fund Transfer (IFT), (ii) Settlement of clearing balances between banks in form of Multilateral Net Settlement Batches (MNSBs) received from NIFT, and (iii) Securities Settlement. Recently, SBP has also allowed settlement of third party fund transfers[5] on behalf of banks' customers, with a view to increase the coverage of PRISM as a funds settlement facility. Initially the upper limit for third party transfers was set at Rs. 10 million, which was later revised to Rs. 1 million with a view to introduce the use of electronic payments to corporate entities[6].

The trends in components of PRISM settlements suggest that securities settlement is the largest component in terms of value. On the other hand, in terms of volume, the number of transactions settled on account of IFT constitutes the major

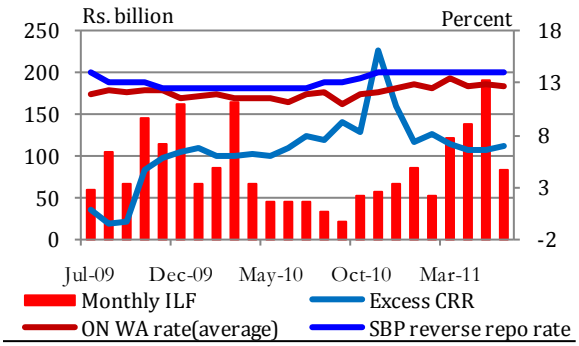
[4] For details on operational and liquidity issues in PRISM (including ILF), see Chapter 8 FSR 2009-10.

[5] PSD Circular No 2 dated 11th February, 2011.

[6] So far, this is a negligible component of settlements in the system.

Figure 7.10

Market Liquidity and ILF utilization



component (*Figure 7.9*). It is partly because no limit has been set for the transfer of funds between members for the purpose of afore-mentioned three categories. Therefore, IFT is being used for all the payments in interbank market. Recently, SBP has however introduced transaction charges of Rs. 200 per transaction with a view to offset the maintenance and system up-gradation costs.[7]

Liquidity strains in market were reflected in usage of intraday liquidity facility

Real time settlement in PRISM can entail significant liquidity risks for the individual banks and can give rise to gridlocks in the system[8]. To counter these issues, SBP has been providing unlimited, fully collateralized intraday credit with a same day repo agreement to PRISM participants in need of liquidity. This intraday liquidity facility (ILF) was introduced in Jan-09 and has been used extensively by banks since then. During H1-CY11, banks availed Rs. 671 billion against this facility. Increased use of ILF is not only an indication of higher payment activity in PRISM, but also a reflection of short-term liquidity stress faced by banks during the period.

During the first half of 2011, bank liquidity remained stressed due to high intra quarter requirements of government borrowing[9] (despite improved foreign inflows and strong growth in deposits). Specifically, the visible strains in liquidity during May-2011[10] are also reflected in surge in ILF usage, amounting to Rs. 191.4 billion, the highest in a month since the initiation of the facility (*Figure 7.10*).

[7] PSD Circular No 01/2011 dated February 04, 2011.

[8] For detailed assessment of liquidity management in PRISM, see Chapter 8, FSR 2009-10.

[9] During H1-CY11, government borrowed Rs. 191.1 billion over and above the target of Rs. 2130 billion for T-bill auctions.

[10] Government borrowing from commercial banks witnessed a rise of Rs189 billion during May 2011, in addition to seasonal expansion of credit for commodity operations to the amount of Rs94.4 billion.

Box 7.1

Branchless Banking in Pakistan

Branchless Banking (BB) as the name suggests, is a mode of banking which does not rely on traditional bricks and mortar branch approach for provision of financial services. The hallmark of BB is the use of technology and the existing infrastructure to reach beyond the physical premises of the banking network. Hence, it can provide a cost effective and innovative banking avenue to the unreached population in remote areas, thereby helping significantly reduce financial exclusion. Experiences[11] from the pioneer countries suggest that costs from BB are on average 19 percent lower than the traditional banking modes. Also 37 percent of active users of BB in eight pioneer cases were previously unbanked which points to the role it can play to effectively tackle the issue of financial exclusion.

Still BB is an evolving concept being carried out using two basic models namely (i) bank led, and (ii) non-bank led/Telco led. Bank led model is essentially where a bank and a service provider enter into agreement to become interoperable towards providing a defined range of financial services. BB in non-bank led model is owned and operated by a non-bank agent independently and is generally carried out by Telcos.

In Pakistan, the extent of financial exclusion is quite significant whereby 56% of the adult population do not use either formal or informal financial products[12,13], and hence the potential of BB is undeniably very high in the country, estimated at 20 percent by 2020[14]. In practice, BB took its roots in Pakistan in April 2008, when SBP issued 'Branchless Banking Regulations' which prescribe several BB activities including opening and maintaining BB accounts, account-to-account and person to person fund transfer, cash deposit and withdrawal, bills payment, merchant payments, loan disbursement/ repayment and remittances. SBP has permitted the practice only through bank-led model where only authorized financial institutions can provide these services, with three permissible modes: one to one (one bank providing service through one agent), one to many (one bank and more than one agents entering into an agreement) and many to many (a joint agreement between more than one banks and agents). These regulations were revised in June 2011 focusing increased role of agents, convenience to customers and reduction in operating cost.

Existing BB network in Pakistan consists of services by four banks following different operational setups from mobile banking to services through banking kiosks ***(Table 1).*** So far, two of the services namely UBL Omni and Tameer Easy Paisa are fully operational large scale projects, while other two are small scale services catering to certain segments of the population. BB network is steadily expanding in Pakistan with a number of projects in pipeline including some big players like MCB, Bank Alfalah and Mobilink planning to enter the BB market in near future.

Table 1: Existing BB network in Pakistan

	Name of provider/Product	Inception Date	Operational Details
1	First Microfinance Bank (FMB).	(March 2008)	BB Services housed at Pak Post offices.
2	Tameer Microfinance Bank/Easypaisa.	(October 2009)	Agent based and Mobile banking
3	UBL/UBL Omni.	(April 2010)	Retail agents/ Omni Dukaans.
4	Dubai Islamic Bank Ltd.	(April 2010)	Banking kiosks at educational institutions.

[11] Claudia McKay and Mark Pickens (2010), "Branchless Banking 2010: Who's Served? At What Price? What's Next?" CGAP No. 66, September 2010.
[12] Finscope survey results at http://www.finscope.co.za
[13] Only 11 percent are formally banked according to the same source.
[14] Telenor Group and Boston Consulting Group (BCG) study on the "Socio-economic impact of mobile financial services".

Rapid expansion in BB business in Pakistan is also revealed by available statistics ***(Table 2)***, where all indicators of BB activity exhibiting steep upward trend over past few months. Going forward, the numbers are projected to further climb steeply with new entrants and innovative products reaching the market. However, the extent to which these numbers exhibit actual rise in financial inclusion needs to be assessed carefully, given that some of users could be from the already financially served section of the population.

Table 2: Branchless Banking(BB) Trends

	Dec-CY10	Mar-CY11	Jun-CY11
Number of BB Accounts(000s)	274.7	387.0	600.0
Volume of BB transactions (million #)	14.9	23.9	36.8
Value of BB transactions (million Rs.)	57160.7	84992.7	136658.0
Total number of BB Agents	13,866	15,688	18,000
Number of cities covered (approx.)	500.0	600.0	650.0

Box 7.2 Concentration Risk in PRISM

Concentration risk in a specific payment system can arise through two channels, namely (i) the liquidity concentration channel and (ii) the payment concentration channel. Concentration through both channels makes payment system vulnerable to payment gridlocks and, in extreme cases, disruption in activity. First, if a certain bank controls significant portion of system liquidity, its failure may indirectly disrupt the payment system activity by straining the liquidity required by otherwise healthy banks. Second, if a bank is involved in significant payment activity, its failure may directly impact the payment system by curtailing other banks' payments which depend on their inflows.

Herfindahl index(HI) is a useful tool in ascertaining the above mentioned vulnerability of banking system and can be calculated as :

$$HI(Liquidity/Payment) = \sum_i (Share\ of\ bank_i\ in\ liquidity/payment)^2$$

By definition, HI ranges between 0 and 10,000 with higher values of index pointing to high concentration in the system, and an index of 10,000 accruing to a monopolistic market/ one market player controlling 100 percent of market share. If the market is question is equally divided into N participants, the index equals 1/N.

We use the data from Pakistan Real-time Interbank Settlement Mechanism (PRISM) since January 2011, on both payments and liquidity of 36 participating banks in the system. HI of payment concentration has averaged at 700, while liquidity concentration index has been hovering around 750 (**Figure 1)**. These results suggest that, while both liquidity and payments activity are not being equally shared by all the participants, these are not excessively concentrated either. On average, concentration in liquidity has been relatively higher than in the payments activity.

Figure 1

Herfindahl Indices for PRISM