PAKISTAN
Strategy Support Program

INTERNATIONAL
FOOD POLICY
RESEARCH
INSTITUTE
IFPRI
A member of the CGIAR Consortium

Potential of Market Discipline in Pakistan: The Bank Depositors' Perspective

Nawazish Mirza, Bushra Naqvi, Syed Kumail Abbas Rizvi, and Birjees Rahat

THE PAKISTAN STRATEGY SUPPORT PROGRAM (PSSP) WOKRING PAPERS

ABOUT PSSP

The Pakistan Strategy Support Program (PSSP) is an initiative to strengthen evidence-based policymaking in Pakistan in the areas of rural and agricultural development. Funded by the United States Agency for International Development (USAID) and implemented by the International Food Policy Research Institute (IFPRI), the PSSP provides analysis in four areas: agricultural production and productivity; water management and irrigation; macroeconomics, markets and trade; and poverty reduction and safety nets. The PSSP is undertaken with guidance from the Government of Pakistan through the federal Planning Commission and a National Advisory Committee, and in collaboration with Innovative Development Strategies (Pvt) Ltd. (IDS), Islamabad, and other development partners. For more information, please visit pssp.ifpri.info.

ABOUT the COMPETITIVE GRANTS PROGRAM

The Competitive Grants Program (CGP) is a component of the PSSP that provides support to Pakistani researchers on topics addressing the PSSP and related objectives. The goals of the CGP are to strengthen social science research within the academic community of Pakistan and to produce quality papers on important development policy issues. While PSSP working papers are not classified as peer-reviewed final publications, the papers developed under the CGP have been presented in program conferences and subject to reviews at the interim and final report stages. The CGP is guided by an academic Research Advisory Committee. For more information on the CGP, please visit pssp.ifpri.info under the tab capacity strengthening/competitive grants program.

This working paper is an output from a CGP grant awarded in February 2013.

ABOUT THE AUTHORS

Nawazish Mirza, Associate Professor of Finance, SP Jain School of Global Management, Dubai Campus, United Arab Emirates.
Email: nawazish.mirza@spjain.org.

Bushra Naqvi, Assistant Professor of Finance, Suleman Dawood School of Business, Lahore University of Management Sciences (LUMS).
Email: bushra.naqvi@lums.edu.pk.

Syed Kumail Abbas Rizvi, Associate Professor of Finance. Lahore School of Economics.
Email: skrizavi@yahoo.com.

Birjees Rahat, Assistant Manager Ratings and Criteria, JCR VIS Credit Ratings Company Limited, Pakistan.
Email: birjeesr@gmail.com.

ACKNOWLEDGMENTS

ABSTRACT

The aim of this research is to ascertain whether Pakistan's financial system is conducive to market discipline. We measure the potential of depositors to induce market discipline in the commercial banking sector. A comprehensive survey of over six thousand respondents was used to gauge their propensity to discipline bank management in response to deteriorating financial conditions. Our results portray that depositors are likely to withdraw funds in response to a reduction in profitability, an increase in non-performing loans, and a reduction in total assets. We identify that banks with better service quality are less sensitive to deposit withdrawals in the event of a reduction in their financial performance. Among other findings, the presence of contractual guarantees by the government desensitizes depositors to market information, making them less likely to be involved in imposing market discipline.

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

INTRODUCTION

Presence of a banking system is pertinent for economic progress, making it highly significant in terms of long-term development and sustainability. However, given the asset and liability structure of commercial banks, the inherent risks can occasionally lead to financial panics and, in extreme circumstances, a systemic collapse. This makes monitoring of the banking sector critical, as is practiced across the globe with commercial banks being highly regulated. While the role of regulators is crucial for a resilient banking sector, the Basel Committee on Banking Supervision introduced the notion of market discipline. This is aimed at complementing the regulators' supervision by imposing discipline through *external* stakeholders.

Theoretically, the concept of market discipline is fairly intuitive. Commercial banks are required to properly disseminate qualitative and quantitative information about their businesses and associated risks. There on, stakeholders (mainly depositors) are expected to perform a thorough assessment of the available information on risk/return tradeoffs, which will result in a corrective action (if warranted), disciplining the bank management. This disciplining would essentially be a two-stage process, guided by the market. Firstly, an informed depositor would require a rate of return on deposits that is in line with the degree of risk associated with the bank. In case a bank features a high degree of risk, yet is offering a lower return, the depositors should push for higher compensation to take on the increased risk associated with the security of their funds. This would penalize banks by increasing their cost of funds. Secondly, if the management does not compensate according to its respective risk level, depositors would shift their deposits to another institution that is offering more appropriate returns. This is likely to discipline bank management, as deposit switching will pose a threat to their funding base.

The empirical literature on market discipline is largely based on financial data and is targeted at assessing the relationship between costs of funds, deposit switching, and banking risks. Maechler and McDill (2006) reported the impact of market discipline on US banks between 1987 and 2000. The findings provided evidence on depositor imposed discipline, with cost of funds being sensitive to risks, which consequently limited the risk appetite of a bank's management. Similar findings were reported by Gropp et al. (2006) and Goyal (2005) that suggested evidence of market discipline in US commercial banks. Shimizu (2009), Uchida and Satake (2009), and Bremer and Pettway (2002) investigated similar issues for Japanese banks and concluded that the regulator's role in Japan is supported by depositors who put immense pressure on bank management to discipline their cost inefficiencies and risk tolerance. Interestingly, this evidence from developed economies is in favor of depositor driven market discipline, which may not be surprising, as the financial system in such economies is likely to be mature which allows depositors to have significant bargaining power. However, this may not be the case for less developed markets.

The less developed emerging economies face inefficiencies owing to market frictions and informational asymmetries. The size of the commercial banking sector in such economies is normally small compared to their developed country counterparts, which allows banks to retain substantial bargaining power. This is aided by the shallow presence of alternate investment vehicles of comparable risk, leaving depositors little choice for parking their funds. Given this fundamental background, the evidence in the literature on market discipline in such economies is mixed. Calomiris and Powell (2000), Barajas and Steiner (2000), Goday et al. (2005), and Romera and Tabak (2010) provided evidence of market discipline in various Latin American countries. On the contrary, Tovar-Garcia (2014) did not find any support for market discipline. While these studies provide inconclusive evidence on the presence of market discipline, it is interesting to note that none of the studies in emerging or developed markets have tried to directly test the depositors' perception regarding market discipline. While hard information based on publicly disclosed financials can be useful, it is also important to gauge if depositors at large have the potential to understand the complicated disclosures and impose any discipline. This study is aimed at addressing the core issue of understanding depositors' perceptions on market discipline in Pakistan through a survey instrument (soft information). Before discussing the research, we provide a brief overview of the banking sector in Pakistan to set the context.

PAKISTAN'S BANKING SECTOR

The banking sector of Pakistan has a brief history, with most of it under the nationalization era. Economic liberalization began to emerge in the 1990s, with the Government of Pakistan initiating financial system reforms after becoming aware of the innate shortcomings that developed post nationalization. Hardy and di Patti (2001) assessed the banking reforms in Pakistan and suggested that the objectives of the reforms were to instill competition between financial institutions by adopting a market based, indirect system of monetary exchange and credit management for better allocation of financial resources while simultaneously strengthening their governance and supervision.

These reforms necessitated an overhaul of the policy regime and incentive framework. Hence, there has been a complete reversal of the financial policy regime of the direct financial system that prevailed in Pakistan in the pre-reform era and much of early 1990s to a market based policy regime. The transformed financial system is radically different from what prevailed before the onset of financial reforms in terms of structure, operations, and control. With the liberalization of the policy regime, there has been a decline in the financial repression which prevailed in the past.

The second area of reform was that of monetary management as stated by Rehman et al. (2011), whereby a reorientation of monetary policy, from direct instruments of monetary control to indirect instruments, has taken place. Open Market Operations were adopted as a major instrument of monetary policy along with the effective use of Cash Reserve requirement and Statutory Liquidity Requirement. Moreover, the discount rate has been established as a core for determining interest rates in the market.

The third phase of the reform process involved the privatization of state owned institutions in both the industrial and the financial system along with an overall strengthening of these institutions. Limi (2004) describes the objective of this exercise as being to improve the level of competition and efficiency in the industry as well as the financial system through the addition of market forces. This also involved opening up of foreign banks as a part of the liberalization process, which provided competition to local banks.

Lastly, the revamping of the system of banking supervision was a core focus area of the reform process. Several steps were taken to enhance the role of the supervisory authority, the State Bank of Pakistan (SBP). A key role played by the reforms was the management of non-performing loans (NPLs) that plagued the balance sheets of almost every bank at that time, along with the issue of non-performing banks and development finance institutions (DFIs). Prudential regulations were laid down for strict compliance by all banks. Moreover, the supervisory authority was reformed to follow directives of the Basel committee and comply with the Basel standards.

In the past, given the state ownership, solvency issues were present, but they were not of overriding concern. However, as proposed by Rehman et al. (2011), after the reforms, together with new operational procedures which induced liberalization of the system, the major concern of financial system managers shifted towards efficiency of financial intermediation and essentially the stability of the financial system without the constant nurturing of the state.

Hence, the current emphasis is on both efficiency as well as stability of the financial system. Structural changes occurred primarily because of the privatization of state owned financial institutions. However, the shift in the operational practices occurred on account of the liberalization of interest rates, removal of ceilings on deposit and lending rates, elimination of subsidized and directed credit, and removal of controls on lending operations primarily at an institutional level or on their business activities.

The foregoing analysis of Pakistan's experience with financial system reforms has a great deal of resonance with comparative experiences during the decades of the 1980s and 1990s among the leading emerging economies of Asia and Latin America. One notes in particular a proliferation of common strands of experiences during the reform and post-reform periods. Invariably, these common strands boil down to sustaining the momentum of structural change that follows the implementation of financial reforms.

Post reform, the current period is regarded as the beginning of a new era for the financial sector of Pakistan. Limi (2004) appropriately raised the concern that whether the momentum of change will be sustained in this period depends on a myriad of challenges facing policy makers. Future growth of the financial system, as well as the economy of Pakistan, will depend upon how resolutely policy makers are able to maintain the course, accordingly articulate policy responses, and successfully implement them. In turbulent times, it will not only be contingent upon the technocracy, but also, to a great extent, on the socio-political milieu.

One caveat that may remain in the banking sector is the penetration of banking products and services. Although the first decade of the twenty-first century has seen mass urbanization, a larger population still resides in the rural outskirts. While the larger banks have their presence in rural areas, the medium and small tier banks are not catering to less developed regions. As the deposit base is skewed towards larger cities, the average depositor in Pakistan is likely to have a higher education level compared to the overall literacy rate of the country.

Banking Supervision in Pakistan

Under the direct regime of credit controls, the focus of supervision was more on credit compliance by the commercial banks and the DFIs than financial strength and solvency of the system. Resultantly, as noted by IMF (2004), profitability was not considered a pertinent issue, as the banks were merely present for facilitation of government owned enterprises. The government bore high losses on account of a large and accumulating number of NPLs and over staffed, inefficient organizational set ups. These losses accumulated into an unmanageable budgetary constraint, which led to excessive borrowing by the Government using the National Saving Schemes channel, leading to distortions in the interest rates. External borrowing was also done via international financial institutions like the International Monetary Fund (IMF), World Bank, and Asian Development Bank (ADB), with loans being extended on the agreement to carry out reforms and structural adjustment.

In addition to the ownership of banks, the emergence of NPLs was also fueled by a lack of emphasis on sound lending practices. The credit targets imposed on the banks and DFIs diverted the attention from extending secure loans to the disregard of lending principles. NPLs emerged as a major threat to the solvency of the banking system in the 1990s; the magnitude of this threat was large enough to negatively impact the profitability and operational efficiency of the entire banking system deeply enough that recovery continues to date.

Alam (2012) reported that, under the liberalized regime, the goals of the supervisory authority are the polar opposite of the pre-reform era; namely solvency, the maintenance of reserves, extension of good loans, and overall health of the financial system, as we also described above. In light of this, the instruments and procedures of banking supervision had to be revamped thoroughly. Moreover, the SBP had to catch up with the international standards of banking supervision as specified under Basel guidelines. In the afterglow of the deregulated environment, the task of the SBP has become more difficult, as it now has to be more stringent and more elaborate in the structure of its laws, regulations, directives, and stipulations. In an open market with global linkages the task of achieving stability free of financial stress is difficult to say the least.

The financial system reforms aided the SBP to become operationally independent in managing its currency and foreign exchange reserves. After the reforms, and the closure of the Pakistan Banking Council in 1997, the supervision of the banking system was left with the SBP. Disclosure standards for banks and non-banking financial institutions (NBFIs) were revised to bring them in conformity with International Accounting Standards. Moreover, a CAMELS[1] framework was adopted by the SBP to assess the performance of banks and NBFIs on the basis of off-site surveillance and on-site inspection.

In part, based on these observations, a credit rating system of banks was developed, independent of the banking supervision system. This credit rating system is now operational and these ratings are available to the public. Abbas and Malik (2010) noted that the financial disclosure requirements in Pakistan are one of the most stringent among supervisory authorities around the globe. There is now in place an early-warning system; though its effectiveness cannot be determined, only anticipated. A supervisory framework for Islamic Finance Institutions is also being developed to cater to the supervisory challenges that may emerge as these institutions continue to gain momentum in the market.

Furthermore, the core principles of banking supervision provided by the Basel Committee, BIS (2004) and BIS (2011), have been implemented by the SBP. The text of prudential regulations has been thoroughly reviewed, updated, and executed in compliance with the Basel guidelines, covering operations of not only the mainstream banking system, but also branches such as investment companies, leasing companies, modarabas[2], foreign exchange companies, and mutual funds. As Basel guidelines have special emphasis on banking surveillance, the SBP has introduced rigorous on-site and off-site examination. This initiative along with continued focus on banking resilience indicators (capital adequacy, asset quality, risk weighted assets, etc.) is designed to harmonize the SBP's role as regulator with international standards consequently strengthening the financial system.

---

[1] CAMELS refer to Capital Adequacy, Assets, Management Capability, Earnings, Liquidity, and Sensitivity.
[2] Modarabas are Sharia based financial contracts in which an investor entrust funds to a manager for a business activity with an agreement to share profit and losses on a pro rata basis.

Deposit Mix in Pakistan's Commercial Banking Sector

This research is aimed at assessing the potential of depositor-induced discipline in Pakistan's commercial banking sector. This is done by a comprehensive survey of commercial bank depositors, primarily household account holders, in Pakistan. To understand our survey methodology it is important to exposit the deposit mix of Pakistan's commercial banks.

The asset base of commercial banks in Pakistan is largely funded by depositors. Table 1 represents average deposits to total assets of banks in Pakistan from 2008 to 2014. The ratio has been trailing between 73% and 79% (76% in 2014) demonstrating deposits as the major funding source. Given this level of leverage, banks always operate on a high risk, warranting a prudent asset allocation strategy. In Pakistan, there is no deposit insurance, which increases the associated risk for the depositors. The only exception to this is the state sponsored National Bank of Pakistan (NBP) where a contractual guarantee exists to safeguard unsecured creditors (depositors). Similarly, there is a mandatory credit ratings requirement for the banks but the inability of a local rating agency to timely downgrade a bank default has raised concerns about the informational content of ratings announcements[3].

Table 1: Deposits to Total Assets, 2008-2014

Year	D/TA
2008	74.9%
2009	73.4%
2010	76.6%
2011	76.4%
2012	75.0%
2013	79.2%
2014	76.2%

Source: State Bank of Pakistan

In Table 2, the deposit base has been broken down according to different categories of depositors in the market. The contribution by households ('personal' in Table 2) is approximately 50% of the total deposit base, followed by businesses which have a total share of around 35% for the last few years. This pattern can be explained with very basic economic reasoning. Households are usually the surplus units who are likely to keep their savings with commercial banks. On the contrary, businesses are deficit units that will continuously require financing to fuel their growth. Furthermore, given their relatively high risk tolerance, businesses with surplus liquidity available are likely to aim for higher returns avenues as compared to deposit products. Therefore, it is likely that most of the deposits by businesses are in the form of current accounts. Lastly, the size of deposit for a business, while it may seem large in comparison to other players in the markets such as households, is usually small in proportion to the total worth of its overall investment. Relevant to our study which surveyed primarily household depositors, with a bank failing to honor its depositors, the financial stability of a business is not likely to be at stake, providing fewer reasons to impose market discipline. Given the total share in the deposit mix, which largely comprises household savings, the resilience of a bank is much more critical for the households. This makes it more important for personal depositors to discipline bank management and supplement the regulatory surveillance.

---

[3] A moratorium was imposed by SBP on KASB Bank on November 14, 2014. This moratorium restricted repayments of certain debts and obligations of the bank to avoid a possible bank run. The bank was downgraded by the local rating agency only after the moratorium was imposed. The related press release is accessible at http://www.sbp.org.pk/press/2014/KASB-14-Nov-14.pdf

Table 2: Deposit Distributed by Category of Deposit Holders, 2013-2015 (PKR in Millions)

	June 2013		April 2014		June 2015		April 2015	
	PKR	%	PKR	%	PKR	%	PKR	%
Personal	3,516,096	49.3%	3,720,713	49.4%	3,948,707	49.0%	4,371,012	50.7%
Business	2,549,103	35.7%	2,738,367	36.4%	2,935,959	36.5%	2,964,220	34.4%
Government	696,173	9.8%	737,112	9.8%	825,071	10.2%	926,228	10.8%
Others	373,036	5.2%	335,587	4.5%	341,830	4.2%	352,706	4.1%
Total	7,134,408	100.0%	7,531,779	100.0%	8,051,566	100.0%	8,614,168	100.0%

Source: State Bank of Pakistan

In Table 3, the geographical distribution of the deposit mix in 2014 has been highlighted, which will be used later to justify our survey design. The deposit distribution is clearly skewed towards two larger provinces (Punjab and Sindh) that contribute around 78% of consumer deposits and a similar share in private sector deposits. These provinces have a corresponding share in total population, with Karachi (Sindh) and Lahore (Punjab) being the two largest cities of Pakistan. Major economic activities are concentrated in these two cities, with Karachi being the economic hub of the country, resulting in their having high shares in banking sector deposits. Islamabad, the capital of Pakistan, and KPK (Khyber Pakhtunkhwa) province have modest 7% and 8% shares in total banking deposits, respectively.

Table 3: Geographical Distribution of Deposit Mix, Year End 2014

	Consumer	Private Sector
Punjab	46.9%	45.7%
Sindh	31.3%	33.3%
KPK	8.0%	5.6%
Islamabad	7.0%	10.0%
Balochistan	2.3%	2.5%
Gilgit Baltistan	0.3%	0.5%
FATA	0.2%	0.2%
AJK	4.1%	2.2%
Total	100.0%	100.0%

Source: State Bank of Pakistan

Given these deposit characteristics it is also interesting to review the deposit structure across commercial banks. Afzal and Mirza (2012) noted that in 2004 the top six banks accounted for 74% of the total banking sector deposits which fell to around 62% in 2009. While the market is still dominated by a few large banks, it is now more competitive than it was a decade ago. Table 4 presents the market shares of the top six banks in terms of deposits and a Herfindahl index (HI) of deposit concentration for the last five years. We can see stability in deposit market concentration with an average HI of 0.31, and the top six banks still mobilizing approximately 62% of total deposits. If the deposit market is concentrated, households have less ability to impose any sort of discipline. Conversely, low concentration offers more room to discipline.

Table 4: Deposit Share of Top Six Banks and Herfindahl Index (HI), 2010-2014

	2010	2011	2012	2013	2014
Top 6 Banks	62.8%	60.9%	60.5%	61.4%	61.9%
HI Deposits	0.33	0.31	0.31	0.32	0.32

There are two notable studies in Pakistan that have assessed the concept of market discipline, albeit indirectly, using hard information. Khawaja and Din (2007) provided some early evidence on interest rate spreads in local commercial banks and reported that deposit supply is inelastic. These findings were refuted in a later study by Afzal and Mirza (2012) who provided more comprehensive evidence on interest spreads demonstrating that deposit supply is

sensitive to interest rates offered by the banks. They attributed this change to banking transitions in the local financial system that were completed in 2006. The former study was based on a sample period between 1998 and 2005, while the later included data between 2004 and 2009. These findings have interesting implications for our survey. If deposit supply is inelastic, this will result in little room for individual depositors to impose any discipline on bank management. However, if the deposit supply is elastic, this will result in some bargaining power for the depositors giving them the ability to impose market discipline.

RESEARCH DESIGN AND SURVEY CHARACTERISTICS

Before we explain our research design and data characteristics we highlight one major caveat of our research. We assessed depositors' perceptions on various reasons of deposit withdrawal to ascertain whether Pakistan's financial system is conducive to market discipline, hence measuring the *potential* of market discipline in the local scenario. These findings should not be taken as an assessment of *observed* behavior of disciplining bank management in Pakistan. However, these results can be used to complement earlier studies that have reported depositors' elasticity.

The first step in our survey design was to decide on banks we should approach to seek an agreement to participate in the research. There are over 30 commercial banks with branches all around Pakistan. However, including every bank with multiple branches throughout the country was not considered cost effective or efficient, with little incremental value to this research. Thus, to achieve a representative sample for our survey, we adapted two criteria. Based on the information discussed earlier in Table 3, we decided to include depositors from four geographical regions. These were provinces of Punjab, Sindh, KPK, and the federal capital Islamabad. As these regions account for 93% of total deposits in Pakistan, respondents from these areas will be representative.

The second criterion was to select banks and their respective branches to seek respondents. While we contacted every commercial bank in Pakistan, only nine agreed to facilitate our survey in their respective branches. Table 5 shows a list of these banks followed by their market share in terms of deposits. It can be seen that these nine banks accounts for almost 73% of total banking deposits for the last five years, making them fairly representative of the overall banking sector.

Table 5: Deposit Share of Selected Banks

Banks	2010	2011	2012	2013	2014
HBL	14.7%	13.8%	15.0%	16.7%	17.0%
NBP	15.6%	15.4%	14.9%	14.3%	13.4%
UBL	10.6%	10.2%	9.8%	9.6%	10.0%
ABL	7.1%	6.9%	6.4%	7.1%	7.4%
MCB	7.9%	8.0%	7.9%	7.5%	7.7%
BAL	7.0%	6.6%	6.4%	6.3%	6.4%
SCB	4.4%	4.1%	3.8%	3.7%	3.6%
Faysal Bank	2.7%	3.6%	3.4%	3.3%	3.3%
Askari	4.4%	4.7%	4.7%	4.2%	4.1%
Cumulative Share	74.3%	73.3%	72.4%	72.6%	72.8%

Branches of these banks were then randomly selected from prominent cities of the selected geographical locations. The location-wise breakdown of the sample bank branches is presented in Tables 6 and 7. The total participating branches are 402 of which 240 were located in Punjab, 149 in Sindh, 25 in KPK, and 24 in Islamabad. The numbers of respondents are reported in Table 8. Our criteria on respondents' selection were fairly simple and based on purposive sampling. As the questionnaire was administered randomly in the vicinity of bank branches, it essentially represents household depositors. It was ensured that the selected respondents have a bank account (current, savings, or fixed) in the respective bank. We also required that respondents had a banking relationship of at least a year. Even with this particular profile requirement, we were able to obtain a total of over six thousand respondents from various banks and locations. This makes our study, to our knowledge, one of the most comprehensive publically-available

primary surveys on Pakistan's commercial banking system[4]. Earlier studies with limited respondents have focused mainly on understanding qualitative aspects. For example, Lee and Ullah (2011) examined motivational factors for depositors' bank choice among Islamic and conventional banking.

In Table 7 we also compare our respondent statistics with that of the geographic mix of deposits. In our study, 51% of the respondents are from Punjab, which contributes around 47% of total consumer deposits. Respondents from Sindh accounted for 37% of our sample, while this province accounts for 31% of consumer deposits. KPK and Islamabad contributed around 6% each in our sample, as compared to a market share in consumer deposits of 8% and 7%, respectively. Given these distributions, we can safely assume that our survey, in general, is representative of a significant portion of the household deposit base in Pakistan.

Table 6: Number and Location of Participating Branches

Banks	Punjab					Sindh		KPK	Capital	Total
	LHE	FSD	RWP	Multan	Gujranwala	KHI	HYD	PSH	ISB	
HBL	12	6	6	4	4	13	11	4	3	**63**
NBP	12	6	6	3	2	13	11	4	3	**60**
UBL	10	6	5	3	3	13	10	4	3	**57**
ABL	10	5	5	3	3	12	8	3	3	**52**
MCB	10	5	5	3	3	12	8	3	3	**52**
BAL	6	4	5	2	2	10	6	3	3	**41**
SCB	3	2	2	0	0	5	2	0	1	**15**
Faysal	5	4	4	3	3	6	2	2	2	**31**
Askari	5	4	4	3	3	5	2	2	3	**31**
Total	**73**	**42**	**42**	**24**	**23**	**89**	**60**	**25**	**24**	**402**

Note: Lahore (LHE), Faisalabad (FSD); Rawalpindi (RWP), Karachi (KHI), Hyderabad (HYD), Peshawar (PSH), Islamabad (ISB)

Table 7: Survey Snapshot vs. Location-wise Deposits

	No. of Branches	Respondents	% of Total	Deposit Share (as per SBP)
Punjab	204	3,060	50.7%	46.9%
Sindh	149	2,235	37.1%	31.3%
KPK	25	375	6.2%	8.0%
Islamabad	24	360	6.0%	7.0%
Total	**402**	**6,030**	**100.0%**	**93.1%**

Table 8: Number of Respondents

Banks	Punjab					Sindh		KPK	Capital	Total
	LHE	**FSD**	**RWP**	**Multan**	**Gujranwala**	**KHI**	**HYD**	**PSH**	**ISB**	
HBL	180	90	90	60	60	195	165	60	45	**945**
NBP	180	90	90	45	30	195	165	60	45	**900**
UBL	150	90	75	45	45	195	150	60	45	**855**
ABL	150	75	75	45	45	180	120	45	45	**780**
MCB	150	75	75	45	45	180	120	45	45	**780**
BAL	90	60	75	30	30	150	90	45	45	**615**
SCB	45	30	30	0	0	75	30	0	15	**225**
Faysal	75	60	60	45	45	90	30	30	30	**465**
Askari	75	60	60	45	45	75	30	30	45	**465**
Total	**1,095**	**630**	**630**	**360**	**345**	**1,335**	**900**	**375**	**360**	**6,030**

Note: Lahore (LHE), Faisalabad (FSD); Rawalpindi (RWP), Karachi (KHI), Hyderabad (HYD), Peshawar (PSH), Islamabad (ISB)

Market Disciplines

Market discipline in its conventional form requires depositors to respond to financial information available publicly. We categorized financial information in terms of profitability, asset base, asset quality, liquidity, capital adequacy, and increasing risk profile (measured as increase in risk weighted assets (RWA)) of the bank and asked respondents *if they will withdraw deposits in the case there is deterioration in these factors?* It is always challenging to incorporate core financial issues in a questionnaire. This task is even more demanding when expected respondents are likely to be less familiar with usual financial terminology. For example, as capital adequacy is an alien concept for most of our respondents, we had to explain this as "*decrease in owners' equity and near equity funding*"[5].

The respondents who will withdraw deposits in response to financial indicators (single or multiple) will be the potential executers of market discipline. The withdrawal of deposits may refer to two possibilities. It can be a deposit switching to another bank (more likely) or a complete exit from the banking system (less likely). Given the importance of banking transactions, we do not believe a complete exit is possible for most depositors. Hence, for this research we refer to deposit withdrawal or deposit closure as a switch of all funds from one bank to another. Specifically, we asked respondents: "*If you observe an increase in risk profile of your bank, will you switch all of your funds to another bank?*"

To explore the disciplinary perception of respondents in detail, we identified a set of factors that may influence the imposition of market discipline. Table 9 presents our seven specific dependent variables and 15 selected explanatory factors. The dependent-variable financial indicators that may trigger depositors' withdrawals have been adapted from earlier studies on commercial banks such as Afzal and Mirza (2012), Uchida and Satake (2009) and Goyal (2005).

---

[5] The questionnaire was pretested and modified using a subsample of respondents to ensure the clarity in design of questions related to financial attributes.

Table 9: Dependent and Explanatory Variables

Potential Market Discipline		
Financial Indicators	**If Marked**	**Otherwise**
Any information	1	0
Profitability (Decrease)	1	0
Assets (Decrease)	1	0
Non-performing Loans (NPLs) (Increase)	1	0
Liquidity (Decrease)	1	0
Capital (Decrease)	1	0
Risk Weighted Assets (RWA) (Increase)	1	0

Explanatory Factors		**Expected Sign**
Demographics and Financial Position		
Gender	Male = 1	(+ or -)
Age	Actual Age	(+ or -)
Education	Years > 14 = 1	(+)
Income	High = 1	(-)
Deposit Type and Concentration		
Deposit Size	High = 1	(+)
Deposit Type	CASA = 1	(-)
Diversification	Accounts at Multiple Banks = 1	(-)
Deposit Concentration	Multiple Accounts in Same Bank = 1	(+)
Consulting of Financial Information		
Frequency (per year)	3 or More = 1	(+)
Bank Choice		
Service Quality	Rated as High = 1	(-)
Salary Account	Yes = 1	(-)
Bank Safety Perceptions		
National Bank of Pakistan (NBP)	Yes = 1	(-)
Bank Size	Top 5 = 1	(-)
Other Investment Possibility		
Alternate Opportunity	Yes = 1	(+)
Location	Punjab or Sindh = 1	(+ or -)

The explanatory factors are grouped as respondents' demographics and financial position, deposit type and concentration, frequency of use of financial information, bank choice, bank safety perception, availability of alternate investment opportunity, and a control variable for location. In terms of our *a priori* hypotheses, the quantifications and expected signs of the variables are reported in Table 9. In demographics, we do not expect gender and age to have any impact on the likelihood to participate in market discipline. However, we expect more education to result in a higher likelihood of market discipline and higher income class to result in a lower expectation of market discipline.

In deposit type and concentration, a larger depositor with multiple accounts in the same bank is hypothesized to be more likely to exercise discipline, while current and savings account (CASA) holders, as well as those individuals who have already diversified their risk with deposits in multiple banks, are hypothesized to have a lower potential for exercising market discipline, having already diversified their risk. The respondents who consult financial information more frequently are hypothesized to have a greater propensity of market discipline. Moreover, we expect that bank choice variables will be related negatively with the likelihood of market discipline. Respondents that are more satisfied with service quality or that maintain a salary account in a particular bank due to organizational requirements, are less likely to impose market discipline.

We define bank safety factors as bank size and depositors who have their account with the state owned NBP. As already mentioned, the NBP, a federal government bank, is the only bank that enjoys a contractual guarantee of

deposit repayment in case of bank failure. We expect a negative relationship of market discipline with bank safety variables. Also, those depositors that have any alternate investment opportunity are more likely to exert discipline in case there is deterioration in a bank's financials. We refer to alternate opportunity as availability of non-depository avenues such as fixed income mutual funds and corporate bonds. Lastly, we also control for bank location to avoid any biases that may arise from respondents of Punjab and Sindh.

To systematically understand the potential and determinants of market discipline we use the above mentioned survey information and estimate Probit models of the form:

$$md = \alpha + \beta_1 DF + \beta_2 DTC + \beta_3 FI + \beta_4 BC + \beta_5 BS + \beta_6 AI + \beta_7 L + \varepsilon$$

where *md* is a dummy variable for market discipline for one of our seven dependent variables (based on respondent choice of deposit withdrawal), *DF* represents the set of demographic and financial position factors, *DTC* symbolizes variables relating to deposit type and concentration, *FI* is a proxy for frequency of consultation of financial information, *BC* accounts for bank choice factors, *BS* relates to bank safety factors, *AI* is the availability of alternate investment opportunities, and *L* is a dummy variable for bank location in Sindh or Punjab.

SURVEY STATISTICS, EMPIRICAL FINDINGS AND DISCUSSION

To elaborate on the potential for market discipline in Pakistan, we begin by reporting descriptive statistics from our survey. Table 10 presents demographic characteristics of the respondents from all four locations followed by information on deposit size and type.[6] The average age of our respondents was 41 with average education of around 15 years (57% had education greater than 14 years). In a country like Pakistan, where literacy rate is very low, we believe this high education average of our respondents will reflect positively on finding evidence of market discipline. Average income of respondents was about PKR 45,000 (about US dollars 450) per month (with 23% having incomes of PKR 100,000 or above). The majority of our respondents were maintaining a CASA, and more than half of the total were classified as medium sized depositors. Interestingly, we have a fairly high representation of female depositors who constitute around 34% of our respondents.

Table 10: Demographic Characteristics of Respondents

				Gender		Deposit Size			Deposit Type	
	Avg. Age (Yrs)	Educ. (Yrs)	Income PKR	Male	Fem.	High	Med.	Low	CASA	Fixed
Punjab	41.5	14.7	45,000	67.4%	32.6%	20%	65%	15%	85%	15%
Sindh	39.3	15.3	44,000	65.1%	34.9%	30%	50%	20%	82%	18%
KPK	42.2	14.6	42,000	72.0%	28.0%	10%	72%	18%	75%	25%
ISB	39.6	15.2	46,000	61.0%	39.0%	25%	63%	12%	79%	21%
Overall	40.6	14.9	44,250	66.5%	33.5%	23.4%	59.8%	16.9%	82.9%	17.1%

The statistics of our survey responses on various other independent variables are summarized in Table 11. Overall, 93% of our respondents believe that financial indicators are important to them for maintaining a banking relationship. Accounts at multiple banks are held by 30% and multiple accounts at the same bank by 15%. The majority (53%) periodically consult information through the financial press, and of these, 90% consult at minimum between one to three times a year. Use of the financial press is rational as press releases and reports are likely to present a consolidated and easy to follow summary while other disclosures can be exhaustive and complicated for an average depositor to understand. In our sample, 20% rate service quality as high; 23% hold salary accounts; 15% hold accounts at NBP; and 18% at the five largest banks. Access to alternative investment opportunities as defined in the survey was reported by 22% of respondents.

---

[6] For model estimation, we defined both income and deposit size as binary variables, as shown in Table 9. The cut off for *high income* was a monthly earning of PKR 100,000 or above, while for large deposit size it was an average balance of PKR 500,000 and above. However, to report descriptive statistics for deposit size, we classified an average balance of PKR 100,000 to PKR 500,000 as *medium* and a balance of less than PKR 100,000 as *low*.

Table 11: Survey Response Statistics

Relevance of Financial Indicators	
Yes	93%
Deposit Diversification and Concentration	
Accounts at Multiple Banks	30%
Multiple Accounts at Same Bank	15%
Sources of Financial Indicators	
Annual Reports	35%
SBP	10%
Financial Press	53%
Others	2%
Frequency of Consultation (Minimum)	
1 time	15%
2 times	45%
3 times	30%
4 times	9%
More than 4 times	1%
Bank Choice	
Service Quality	20%
Salary Account	23%
Bank Safety	
National Bank of Pakistan (NBP)	15%
Bank Size	18%
Other Investment Possibilities	
Alternative Opportunity	22%

The responses on deposit withdrawal owing to changes in financial conditions of the bank (the dependent variables) are reported in Table 12. The most important factor for deposit withdrawal is profitability, as 95% will switch their funds to other banks if there is a decline in the profitability. A decrease in total assets will push 85% of respondents to withdraw their deposits. An increase in NPLs will trigger 15%, while with a decrease in capital 10% will choose to withdraw funds.

Conversely, the response on liquidity and RWA is nominal with only 4% and 3% of respondents reacting negatively to this information, respectively. There are two possible reasons for low response on these factors. Firstly, for an average depositor, understanding the concepts of liquidity and RWA is challenging resulting in their reluctance to respond to these variables. Secondly, with most of Pakistan's banks investing heavily in government securities, liquidity and RWA are not a serious concern for most of the banks included in our survey. Hence, the respondents may believe that it is unlikely to see a material deterioration in these factors in the foreseeable future, making them irrelevant to deposit decisions. Finally, only 2% of the respondents are insensitive to having any financial information affect decisions about withdrawal of their deposits.

Table 12: Responses on Deposit Withdrawal

Financial Indicators	
Profitability (Decrease)	95%
Assets (Decrease)	85%
Non-performing Loans (Increase)	15%
Liquidity (Decrease)	4%
Capital (Decrease)	10%
Risk Weighted Assets (Increase)	3%
None of the above	2%

Model Results

The empirical results for our Probit models are presented in Table 13. The relationship between financial fundamentals and explanatory factors are largely in line with our hypothesis. While neither gender is likely to respond to NPLs, liquidity, capital, and RWA, females are more likely to respond to a decrease in profitability. Their male counterparts seem to be more sensitive towards negative information about assets. Older respondents demonstrate a greater sensitivity to information related to assets, NPLs, and capital, while younger respondents' gave more weight to a reduction in profitability. Respondents with higher education levels are likely to impose market discipline for all financial variables, with the effects significant except for liquidity and RWA. Depositors with higher income levels demonstrate lower potential of market discipline (significant for profitability and assets), which is understandable, as they have higher personal buffers available.

Larger depositors are less likely to withdraw their funds in response to changes in financial variables. This also may make sense because they are most likely enjoying better rates than smaller depositors, and because they may be faced with a cost of withdrawal which can be significant, especially in the case of fixed deposits. We observe that CASA holders are more likely to withdraw their money if there is a decrease in assets, liquidity, or an increase in NPLs. This seems logical, despite our *a priori* hypothesis, as these deposits have no contractual maturity and are callable without notice. A reduction in total assets, liquidity crunch, and increasing NPLs can dampen a bank's capacity to honor its current and saving accounts. The fixed account holders show a greater tendency to withdraw in case there is a reduction in profitability or capital. We attribute this to the perception that if a bank's profitability is under pressure, it may face difficulty paying mark ups to fixed depositors. Surprisingly, we estimate negative signs for deposit concentration with respect to declining profitability and reduction in assets. While this is contrary to our expectations, we can speculate that most depositors may keep multiple accounts in the same bank because of convenience. This may reduce their motivation towards financially triggered discipline.

Table 13: Results of Probit Regressions

	Any info	Profitability	Assets	NPLs	Liquidity	Capital	RWA
Demographics and Financial Position							
Gender	0.031	-0.025**	0.026**	0.023	0.025	0.022	0.053
Age	0.002	-0.005**	0.006**	0.006**	0.007	0.013**	0.009
Education	0.085***	0.077***	0.091***	0.109**	0.057	0.101**	0.168
Income	-0.235	-0.226**	-0.314**	-0.377	-0.419	-0.384	-0.698
Deposit Type and Concentration							
Deposit Size	-0.128**	-0.169**	-0.255**	-0.283	-0.189	-0.297**	-0.452
Deposit Type	-0.091	-0.072**	0.095**	0.103**	0.074**	-0.096*	-0.018
Diversification	0.032	0.043	0.085	0.08	0.114	0.028	0.06
Deposit Concentration	0.183	-0.206**	-0.368**	-0.699	-0.709	-0.252	-0.069
Consulting Financial Information							
Financial Information	0.075***	0.061***	0.068**	0.045**	0.042	0.04**	0.121
Bank Choice							
Service Quality	-0.067**	-0.059**	-0.101**	-0.038	-0.037	-0.102**	-0.097
Salary Account	-0.094**	-0.085**	-0.088**	-0.074	-0.064	-0.039	-0.128
Bank Safety							
NBP	-0.003***	-0.002***	-0.002***	-0.001***	-0.002	-0.002***	-0.003
Bank Size	-0.097**	-0.062**	-0.07**	-0.091**	-0.048	-0.109**	-0.179
Other Investment Possibility							
Alternate Opportunity	0.087**	0.095***	0.105***	0.081**	0.073	0.05**	0.155
Location							
Location	0.055	0.073	0.11	0.069	0.063	0.096	0.032
N	6030						
Pseudo R^2	0.35	0.33	0.37	0.4	0.21	0.28	0.23

Significance at 1% (***), 5% (**) and 10% (*)

The frequency of consulting financial information has a positive relationship with propensity of disciplining the bank management. The respondents who consult financial information more frequently are more likely to react negatively to adverse movements in the dependent financial variables.

Bank choice variables based on service quality and salary account demonstrated a negative relationship with withdrawal, and depositors who opt for a particular bank for either of these reasons are less likely to switch on the basis of the deterioration in the financial variables included in the survey. The negative sign on the service quality variable shows the relevance of service for the banking industry; that depositors are likely to maintain their banking relationships if they are satisfied with the service even if there is a decline in financial performance. This has management implications for banks to concentrate on their customer service to mitigate risk to their funding base.

In the bank safety variables, depositors of the NBP and larger banks (top five) are less likely to withdraw their funds based on bank financial performance. While there can be other plausible reasons, we believe that *too big to fail* and *systematic importance* may explain part of this perception. Depositors believe that these banks dominate the banking sector in Pakistan and are unlikely to fail owing to their network and operational scale. Further, in the extreme case of failure, they see a government bailout to be inevitable due to the systemic importance of these institutions. However, this perception can be true for the NBP due to the contractual guarantee by the state but may not be an ideal assumption for large private-sector banks.

A very important finding from our survey is the availability of alternate opportunities for depositors. Our results reveal that depositors with alternate avenues to park their funds are more likely to switch deposits if they see a decrease in the financial quality of a bank. Generally, an alternative to banking deposits can be fixed income mutual funds and corporate bonds. In Pakistan, the mutual fund market has been a recent phenomenon which is still in its very early stages. The corporate bond market is also limited with few instruments available. To the extent that both of these options are not very liquid, the financial surplus units in the economy have less choice but to invest in banks (and NBFIs). Given the significant positive relationship that we observe between potential market discipline and alternate investment opportunities, a possible policy recommendation for the government is to deepen the corporate fixed income market. This in turn will provide depositors with choices and help discipline financial institutions, contributing towards the resilience of the financial system. These results should also be considered as support to Afzal and Mirza (2012) which was the primary study in Pakistan to identify depositors' elasticity as reflecting potential to impose market discipline.

We could not deduce any significant results for diversification or location. Therefore, depositors do not perceive cross bank exposure to be of relevance and our results are not influenced by respondents who are from the two larger provinces. This can be attributed to the systemic nature of the commercial banking industry. Lastly, our respondents largely believe information on liquidity and RWA to be of no use to trigger a withdrawal. This is alarming because, in general, these two variables, and RWA in particular, are important to assess the financial quality of an institution. While disclosures regarding financial information exist, the concept is not easily understood by average depositors. Therefore, while the central bank requires these disclosures to be exhaustive in its efforts to protect stakeholders, an equal effort should be made to convey a summary in non-technical terms for laymen to understand.

CONCLUSION

The aim of this primary research was to assess the potential of depositors to exert market discipline in Pakistan's commercial banking sector. There are multiple reasons to justify this exercise. Almost all previous evidence on market discipline has been based on use of financial information to gauge the presence and level of market discipline. While these studies have important findings, the results are based on variation in financial variables that may or may not be a good proxy to judge the presence of market discipline. Moreover, they do not primarily access average households who are the main victims in the case of bank runs.

Pakistan's commercial banking sector has witnessed significant changes in the last fifteen years with the adoption of global regulatory standards to increase transparency and disclosure for the general public. However, little research has been conducted on the evidence of these disclosures influencing the behavior of household financial surplus units. Our extensive survey was an attempt to explore how these comprehensive disclosures, and other financial information, might be used by depositors and whether they are similarly incorporated into their banking decisions or not.

The findings we report are interesting for regulators, bank management, as well as depositors. Our results suggest that average depositors have a keen interest in bank disclosures, and different depositors have different reactions to financial information. Certain demographic factors are important determinants of the potential for market discipline along with deposit type, frequency of consulting financial information, bank choice, bank safety, and alternate financial possibilities. From this, we stress two main policy recommendations. Firstly, bank management should focus on service quality, as we report that respondents who chose a particular bank because of its service are less likely to switch in response to deterioration of financial variables. Therefore, we can deduce a negative relationship between service quality and funding risk. The second implication applies more broadly, and is to develop and promote a robust fixed income market that will provide, not only ample opportunities for businesses to fund their growth, but also help the average household to invest. As depositors will have more possibilities, reliance on banking deposits will be reduced, increasing the potential of market discipline.

To conclude, we reiterate a caveat to our research; we present evidence that reflects survey responses of perceived actions of depositors. How they may actually behave is something we cannot conclude, even from one of the most comprehensive publically-available surveys on banking customers. Therefore, these results should not be confused with actual imposition of discipline. However, our findings based on primary survey data about perceptions supplement the studies based on hard information on market discipline to help us understand the factors that contribute towards the existence or absence of market discipline.

REFERENCES

Abbas, K. and Malik, M. (2010). "Impact of Financial Liberalisation and Deregulation on Banking Sector in Pakistan". *PIDE Working Paper Series,* 2010:64.

Afzal, A. and Mirza, N. (2012). "Interest Rate Spreads in an Emerging Economy: The Case of Pakistan's Commercial Banking Sector". *Ekonomska Istraživanja*, 25(4): 987-1004.

Alam, N. (2012). "The Impact of Regulatory and Supervisory Structures on Bank Risk and Efficiency: Evidence from Dual Banking System". *Asian Journal of Finance & Accounting*, 4(1): 217-244.

Barajas, A. and Steiner R. (2000). "Depositor behavior and market discipline in Colombia". *IMF Working Paper* no. 00/214. Available via IMF, http://www.imf.org/external/pubs/ft/wp/2000/wp00214.pdf

Bank for International Settlements. (2004). "Basel II: International Convergence of Capital Measurement and Capital Standards: a Revised Framework". *Publications by Basel Committee on Banking Supervision*.

Bank for International Settlements. (2011). "Basel III: A Global Regulatory Framework for More resilient Banks and Banking Systems - Revised Version June 2011". *Publications by Basel Committee on Banking Supervision*.

Bremer, M. and Pettway, R. (2002). "Information and the Market's Perceptions of Japanese Bank Risk: Regulation, Environment and Disclosure". *Pacific Basin Finance Journal,* 10: 119-139.

Calomiris, C.W. and Powell, A. (2000). "Can Emerging Market Bank Regulators Establish Credible Discipline? The case of Argentina, 1992–1999". *NBER Working Paper* no. 7715. Available via NBER, http://www.nber.org/papers/w7715.

Goday, V., Gruss, B., and Ponce J. (2005). "Depositors' Discipline in Uruguayan Banks". *Documento de Trabajo* No. 003-2005, Banco Central del Uruguay. Available via http://www.bvrie.gub.uy/local/File/ doc-trab/2005/3.2005.pdf.

Goyal, K. (2005). "Market Discipline of Bank Risk: Evidence from Subordinated Debt Contracts". *Journal of Financial Intermediation ,* 14: 318-350.

Gropp, R., Vesala, J., and Vulpes, G. (2006). "Equity and Bond Market Signals as Leading Indicators of Bank Fragility". *Journal of Money, Credit and Banking ,* 38(2), 399-428.

Hardy, C., and Di Patti, E. (2001). "Bank Reform and Bank Efficiency in Pakistan", *IMF Working Paper* WP/01/138, International Monetary Fund Publications.

IMF (2004). "Pakistan: Financial System Stability Assessment, including Reports on the Observance of Standards and Codes on the following topics: Monetary and Financial Policy Transparency, Banking Supervision, and Securities Regulation", *IMF Country Report No. 04/215*.

Khawaja, I. and Din, M.. (2007). "Determinants of interest spread in Pakistan". *PIDE Working Papers*, 22, pp 1- 16.

Lee, K. and Shakir, U. (2011) "Customers' Attitude Toward Islamic Banking in Pakistan". *International Journal of Islamic and Middle Eastern Finance and Management*, 4(2): 131-145.

Limi, A. (2004). "Banking Sector Reforms in Pakistan: Economies of Scale and Scope, and cost Complementarities". *Journal of Asian Economies*, 15(3): 507-528.

Maechler, A., and McDill, K. (2006). "Dynamic Depositor Discipline in US Banks". *Journal of Banking and Finance,* 30: 1871-91.

Rehman, W., Fatima, G., and Ahmad, W. (2011). "An Empirical Analysis of Financial Reforms in Pakistan: Does it Affect Economic Growth*?" International Journal of Trade, Economics and Finance*, 2(4): 341-345.

Romera, M.P., and Tabak, B.M. (2010). "Testing for Market Discipline in the Brazilian Banking Industry". *Banks and Bank Systems* 5(3):112–128.

Shimizu, K. (2009). "Is the Information Produced in Stock Market Useful for Depositors". *Finance Research Letters*, 6: 34-39.

Tovar-Garcia, E. (2014). "Market Discipline: A Review of the Mexican Deposit Market*". Latin American Economic Review*, 23(6): 1-33.

Uchida, H., and Satake, M. (2009). "Market Discipline and Bank Efficiency". *Journal of International Financial Markets, Institutions and Money,* 19 (5): 792-802.