

## **Non-Performing Loans and Credit Managers' Role: A Comparative Approach from Pakistan and Turkey**

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### **ABSTRACT**

In this paper, we study the role that credit managers may have on lending non-performing bank loans (NPLs). We adopt a comparative approach to investigate our leading question and thus based on data from Pakistan and Turkey. Our investigation approach leans on face-to-face interviews with credit managers. Our empirical regularities for Turkey document that Regulation, Practice, and Quality in banking are no longer consistent drivers explaining the non-performing loans. Our empirical regularities for Pakistan document that mainly the decision-making by the credit managers was influenced during banking crisis by some external factors such as personal interest and political corruption.

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*Keywords:* Non-performing bank loans; Survey; Ordered Probit model; Credit managers

## I. INTRODUCTION

Most developing economies that undergo the process of financial liberalisation have banking systems that are burdened by a large proportion of bad loans and risky credits. The most common cause of bad loans is directed lending to preferred individuals or favoured sectors of the economy. These loans have created several problems for financial sectors and have seriously hindered the growth of developing economies. State-owned banks (SOBs) rely on government interventions to protect them against their large risk exposures to the enterprises to which they have lent. That weakens their bargaining power and ability to control borrowers.

Over the last three decades, banking crises have become more prominent for both developed and developing countries. Caprio and Klingebiel (1996, 1997 and 1999), for example, have identified over eighty-six separate episodes of large-scale bank insolvency across a wide range of developed and developing countries in the 80s and 90s while Kaminsky and Reinhart (1999) report 102 banking or currency crises from 1970 to 1995 among a sample of 20 industrialized and developing countries.

Between 1999 and 2001 Turkey experienced systemic financial difficulties punctuated by a series of banking and currency crises – June-December 1999, November 2000, and February 2001 – that wiped out the capital of the Savings Deposit Insurance Fund (SDIF) banks, decimated the equity of the other public and private banks, and necessitated a bailout by the International Monetary Fund. Over this period, 22 private banks were seized by the regulator, the Banking Regulation and Supervisory Agency (BRSA), and several state banks were reorganized. By the end of 2001 the BRSA had injected over USD 42 billion into the banking sector and Turkey's gross domestic product stood 5.5% lower than in 1998.

The Pakistani financial system has been in a transitional period from a predominantly administered system to a market oriented one since the early 1980s. The Pakistani banking system, in particular, faced a number of bottlenecks that were similar to those of other countries of comparable development like India, Bangladesh and even Turkey. A fundamental problem was the large volume of non-performing loans (NPLs) that have accumulated since the nationalization of the banking system in the 1970s.

This paper contributes to the literature on non-performing bank loans in developing countries by investigating the behaviour of credit managers in Turkey and Pakistan who actually make the lending decisions. The study identifies factors that contributed to an increase in NPLs in large state-owned commercial banks over the period 1999-2001 and 1996-1998 in Turkey and Pakistan respectively. A major feature of the paper is the use of survey methodology to obtain primary data. We had face-to-face interviews with 110 senior credit managers in the four major commercial banks in Turkey and 100 credit managers in five large state-owned commercial banks of Pakistan. Then we use the application of the ordered probit model for analysing the survey data.

The paper is divided into five sections. The second section gives a brief background of the subject and the literature review. The third section gives the details of the Turkish and the Pakistani Banking sector. The fourth section contains the methodology used and the fifth section contains the empirical results. Finally, the last section concludes with a short summary.

## II. BACKGROUND AND LITERATURE REVIEW

Surveys have been employed by previous studies, but none of them used it for examining the causes of bank failures and banking crises. For example, Royal and Althausser (2002) use surveys across different levels of an organization to determine key indicators and performance drivers in the investment banking industry. In the same way, Bassi et al. (2001) employ surveys and interviews to test their hypotheses regarding the positive relationship between sophisticated use of human capital and firms' financial performance. Beaulieu (1994, 1996) employ the questionnaire methodology with loan officers in relation to their commercial lending. Most of these studies have also used different statistical methods to analyze the efficiency and performance of finance managers.

The paper's two major features are the use of survey methodology to obtain primary data and the application of the ordered choice models for analyzing this data. Thus, this research is unique and stands in contrast to other empirical studies on banking crises that are based principally on published annual data, such as Kaminski and Rhinehart (2000, 1998), Demirguc-Kunt and Detragiache (1998a) Eichengreen and Rose (1998) the IMF (1998) and Gavin and Hausman (1996).

Previous literature stresses the importance of factors such as political pressure, regulatory weakness and internal factors within the bank's management as the causes of the fragility of the banking sector. Djankov et al (1999) and LaPorta and Shlifer (2000) show that enforcement of prudential regulation is especially likely to be complicated by political considerations where there is a concentration of ownership and control of firms, as this typically entails concentration of political power. Oriana et al. (1999) show that in developing countries political intervention in the financial sector goes far beyond the regulation of interest rates and credit expansion and relate this to bank sector weakness. Honohan (1997) stresses the importance of poor management and other microeconomic deficiencies in bank failures.

Caprio and Klingebiel (1996) identified deficient management, faulty supervision and regulation, government intervention and weak corporate governance as major causes of the 68 banking sector insolvencies they documented in the 1980s and 1990s. Garber (1998) and Mishkin (1999) showed that poor management and unwise lending were major causes of the crises in Chile 82-83, Turkey 1994 and Mexico 94-95. In the Pakistani banking crisis of 1996-1998, Hardy and di Patti (2001) show that credit managers contributed directly to the bank failures by diverting substantial amounts of funds for their personal gain.

The survey methodology makes it possible to gather and quantify qualitative information like this regarding regulation, political interference, and internal deficiencies such as poor or corrupt management, weak corporate governance, inadequate or imperfect accounting, auditing and disclosure practices and internal controls on operational and credit risk. We focus on the senior management of the banks because it is widely thought that the banking crisis in Turkey and Pakistan was similar to the Mexican and Asian crises of 1994 and 1997 respectively, which in large part have been shown to be the making of the banks, their poor management, political corruption and the governments of that time period [see Mishkin (1999), Garber (1998) and Clark (2001)]. In fact, Denizler, Guntekin and Guntekin (2000) show that strategies in the Turkish banking sector leading up to 1999 were major causes of the onset of the

banking crisis in 1999. The strategies included falsified increases in equity capital of the bank, the use of intermediary firms to lend above legally set limits to companies that are controlled by the banks' owners ("related lending"), and back-to-back lending among banks that increased the exposure of the bank system to bad credit risk.

The method we use focuses on interviews and questionnaires carried out directly with senior credit managers who authorized loans that turned into non-performing loans. By the scope of this paper we apply the ordered probit model to analyze and compare our survey data. Such a method has not been used in previous studies analysing non-performing bank loans.

To analyze the dichotomous data, we employ ordered dependent variable models to identify which of nine potential explanatory factors identified in the literature are significant determinants of the two principal manifestations of the crisis, non performing loans levels in the banking sector and the loss of asset value measured as a percentage of the bank's portfolio. We find that external government intervention and loans to connected government enterprises and insiders were major determinants of non-performing loan levels and asset losses. We also find evidence that poor credit risk assessment and a low capital base influenced non-performing loan levels, and that inadequacies in basic accounting, auditing, and disclosure practices as well as weak capitalization had a significant effect on asset losses.

### III. OVERVIEW OF THE BANKING SYSTEMS

#### A. The Turkish banking system

Table 1 summarizes the Turkish banking sector as of 2004 in the aftermath of the crisis. It has 57 commercial institutions and 18 development and investment banks that have combined equity of US \$10.21bn and total assets of US\$ 144bn. Private commercial banks account for over 50% of total bank assets and close to 50% of total deposits. The weak capital structures of the state-owned commercial banks are reflected clearly in their financial leverage ratio of 27, while Savings Deposit Insurance Fund (SDIF) banks, which underwent massive loan losses during the crisis, strive to survive with negative equity structures. State banks, which lost a good proportion of their capital bases during the crisis, account for one third of the sector's total assets but only 17% of shareholders' equity. In contrast, the shareholder equity of privately owned commercial banks exceeds the sector total due to the negative capital base (-US\$ 6bn) of SDIF banks.

The crisis of 1999-2001 is rooted in the institutional development of the regulatory and supervisory mechanisms in the Turkish banking sector. Deposit insurance was introduced in 1983 in the aftermath of the massive collapse of savings and loans institutions. The 1985 law on banking regulations (Banking Act No. 3182), which retroactively formalized the limited deposit insurance and made the Treasury the principle institution responsible for bank supervision and regulation, represented the first major attempt at regulating the banking sector.

**Table 1**  
Structure of Turkey's banking sector (2004)

Bank Group	No. of banks	Branches	Branch/ Bank	Loans \$min	Assets \$min	Deposits \$min	Sh. Equity \$min	Loans/ Assets	Financial Leverage
<b>Commercial Banks</b>									
State-owned Com banks	4	2,815	704	12,213	47,983	37,240	1,766	25%	27
Privately-owned Com ban	7	3,718	138	28,901	77,317	47,916	12,099	37%	6
SDIF Banks	9	1,038	115	1,034	4,595	9,315	-6,108	22%	-1
<b>Foreign Banks</b>									
Foreign Banks founded in Turkey	4	80	20	976	4,804	2,358	508	20%	9
Foreign Banks with Branches in Turkey	3	31	2	414	2,900	582	388	14%	7
<b>Development and Investment banks</b>									
State-owned Dev. & Inv	3	11	4	3,691	4,681	0	1,203	79%	4
Priv-owned Dev. & Inv	2	16	1	470	1,353	0	314	35%	4
Foreign Banks	3	3	1	33	273	0	42	12%	7
Total	5	7,712	985	47,732	143,908	97,411	10,212	2	64

Source : Masood, Stewart Sutlan (2007)

Legislation making deposit insurance more generous contributed to the banking sector's problems. Initially the coverage was limited to 100% of Turkish lira deposits up to a legally set maximum and 60 percent thereafter (Banks Act No. 3182). In 1992, the coverage was extended to foreign currency accounts. Finally, on May 5, 1994 after the banking crisis and a run on banks, the Treasury eliminated the cap and declared 100 percent insurance on all deposits. Although this helped to stabilize the banking sector during the 1994 crisis, it also encouraged further risky behavior leading up to the crisis in 1999.

In addition, financial sector regulators and supervisors lacked autonomy, making them susceptible to political and industry pressure. Furthermore, basic accounting, auditing and disclosure practices were also significantly below international best practice. Honohan (1997), for example, emphasizes that Turkey's 100% deposit guarantee and a tradition of forbearance instead of firm corrective action encouraged excessive risk taking, increased moral hazards and weakened market discipline. Alper and Onis (2002) argue that the destruction of bank franchise values was the result of heavy government intervention and unfair competition.

The severe banking crisis in 1999 highlighted the need for instituting an autonomous and independent banking supervisory and regulatory framework. The formation of the Banking Regulation and Supervisory Agency (BRSA) in 1999 was an important milestone in banking regulation in Turkey. As an independent regulatory agency, BRSA was somewhat insulated from the political pressures that plagued the supervisory functions of the Treasury. There is some doubt about the extent of its independence, however. According to Alper and Onis (2002) the organization is not entirely isolated from political intervention since the Cabinet appoints its chairman and board members. In fact, in 2000, the appointment of the first board bitterly divided the governing coalition and the final decision was repeatedly delayed and only approved because it was a “structural performance criterion”, which had to be met to qualify for financial assistance from the IMF. After the crisis of February 2001, the autonomy and political independence of the BRSA was called into doubt when the IMF requested the dismissal of the first set of board members.

## **B. The Pakistani Banking System**

The Pakistani banking sector has undergone a complex reform process in the last three decades. In the 1970s, Pakistani’s government took control over the banking system by nationalizing commercial banks. This decision targeted particular objectives such as nationwide branch expansion, mandatory credit allocation to the public and agricultural sectors and deposit mobilization through the National Saving Scheme. It was later recognized by the Pakistani authority itself that the low efficiency of national financial institutions had negative implications for the Pakistani economy as a whole. As a direct consequence of this the Pakistani government was forced to undertake a restructuring of the banking sector in the late 1980s.

In 1992, Directives were issued to banks for provisioning and classification of NPLs SOBs had to declare, for the first time, the volume of NPLs in balance sheets (in the last row of Table 1 we see that SOBs accounted for 88.1%–95.8% of NPLs in the whole banking sector over the period 1990–1992.) These banks did not write off any loans from their financial books. These loan defaulters were effectively depriving the poor saver of their rightful share, which dangerously undermined the credibility of financial institutions leading to the banking crisis. Banks were unable to even meet their daily expenses, highlighting the severity of the crisis. NPLs grew by almost 600 percent during 1993-1996 and SOBs accounted for 53 percent of the entire loan portfolio. SOBs became Government banks that financed its large fiscal deficit and provided politically motivated credit at subsidized rates. Banks continued to direct funds to state-owned enterprises (SOEs) despite their inefficiency, and this later led to the weakening of the financial and banking sector. The inefficiency of the banking sector was largely due to inconsistent and unstable economic policies which remained the same through repeated changes in Governments. Banks did not write off NPLs but started providing new loans for paying off old claims which led, in essence, to the classical case of Ponzi finance

As the overall size of the Pakistani economy was small in terms of the volume of the credit created, these large non-performing loans and the misallocation of credit resulted in long- term problems. The 1991 reforms facilitated the deepening of the financial sector by allowing private sector banks to operate in Pakistan. These banks are more customer-focused and have recruited staff more qualified and skilled in every

aspect of modern banking. As a result the private sector has shown a keen interest and new banks have opened – now collectively known as the New Established Private Banks (NEPB). During 1991 to 1995 the number of new private banks increased from 10 to 25. Most NEPBs restrict operations to short-term, trade-related financing. Small banks with a relatively small capital base are likely to face a tough time from the already established banks and an ever-increasing number of foreign banks.

A further phase of banking adjustment took place during 1997 to 2001. These reforms aimed at preparing a more extensive and competitive environment and finalizing the privatization and liberalization policy. The privatization of SOBs was simultaneously accompanied by the liberalization of the financial system and the openness to domestic and foreign competition. Foreign Banks comprise 24 percent of total advances and deposits within the banking system. Traditionally, foreign banks have focused on short-term trade finance, targeting mainly low risk blue chip clients and high net worth individuals. Foreign banks have also expanded into retail banking, capital market operations, and consumer/retail banking. One of the major constraints for foreign banks is the restriction placed on branch expansion by the State Bank of Pakistan. Because the number of branches is limited to four, they are at a major disadvantage, compared to private and denationalized banks. This has deprived foreign banks of an extensive distribution network to tap smaller retail customers, although it does facilitate comparatively low operating costs and more efficiency. Bonaccorsi and Hardy (2005) show that privatized banks improved their profit efficiency in the period immediately after their privatization.

**Table 2**  
Structure of the banking sector of Pakistan

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Assets/GDP	49.7	49.6	53.1	56.0	56.1	54.6	55.8	54.5	54.5	52.6	51.5
Deposits/GDP	41.4	41.7	44.1	46.4	46.5	45.5	47.0	45.7	44.8	42.2	41.6
NPLs /total Loans	62.1	69.6	67.1	70.5	66.2	66.5	61.9	64.4	62.9	64.5	64.0
Percentage share of state-owned banks in banking sector											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Assets	92.2	89.1	83.7	80.1	78.4	76.7	72.3	68.7	70.5	71.8	70.6
Advances	92.1	90.0	84.1	83.4	79.3	76.1	73.0	67.0	67.6	69.2	68.1
Investments	93.0	89.8	85.4	82.1	80.2	78.8	74.1	69.9	71.1	74.6	73.7
Deposits	93.0	89.8	85.4	82.1	80.2	78.8	74.1	69.9	71.7	74.6	73.7
Capital	85.4	80.4	65.5	60.6	57.8	52.6	41.7	20.8	56.6	50.6	55.6
NPLs	95.0	95.8	92.6	94.4	95.8	94.1	92.5	91.7	90.9	88.9	88.1

Source: State Bank of Pakistan Annual Reports

#### IV. SURVEY AND METHODOLOGY

The primary data were collected by a questionnaire (reported in the Appendix) given to fund managers of the banks in Turkey and Pakistan, which was designed to analyze the lending attributes of the credit managers and to investigate the reasons for a high percentage of NPLs in SOBs during the period of the crisis. We had face-to-face interviews with 110 senior credit managers in the four major commercial banks in Turkey and 100 credit managers in five large state-owned commercial banks of Pakistan. Interviews were appropriate methods to obtain the personal and socio-cultural attributes of respondents.

The questionnaire isolates the micro-economic factors as well as the government inconsistent policies and corruption that were believed to have caused NPLs. Respondents were also asked if they thought that any factors other than those addressed by our questionnaire were relevant determinants of the banking crisis in their country. As both the economies observed different determinants for NPL's, hence we take different variables for Turkish and Pakistani banks.

For Turkey the NPL was regressed by 8 different variables, which are Banking regulation and supervision (Regulation); accounting, auditing and disclosure practices (Accounting); overall bank capitalization (Capital); government intervention in credit allocation (Intervention); capital base (Capbase); quality of bank capital (Quality); credit risk assessment (Risk); and percentage of bank loans lent to related companies and insiders (Loans).

For Pakistan the NPL was regressed by 7 different variables, which are basic education (BE); professional education (PE); years of service (YOS); number of courses attended by credit managers (CA); years of experience as credit manager (YOE); credit limit of credit managers (CL); communication facilities provided to credit manager's (CF).<sup>1</sup> The dependent variable NPL is coded to rise as non-performing loans increase.

The ordered probit model is applied to the survey data since it is appropriate when the dependent variable ("extent of non-performing loans") is ordinal. All explanatory and dependent variables obtained from the questionnaire are ordinal and have three ranked values 1, 2 and 3 that correspond to the three potential responses to any particular question.

The ordered dependent variable model assumes the following latent variable form (see Greene, 2003):

$$Y = \sum_{k=1}^K \beta_k X_{ik} + \varepsilon_i \quad (1)$$

where,  $X_{ik}$  are the explanatory variables,  $\varepsilon_i$  is a stochastic error term and  $Y$  is the unobserved variable that is related to the observed dependent variable,  $Y_i$ , assuming  $J$  categories as follows:

$$Y_i=1 \quad \text{if } Y \leq \lambda_1 \quad (2)$$

$$Y_i=j \quad \text{if } \lambda_{j-1} \leq Y \leq \lambda_j, \quad j = 2, 3 \dots J-1 \quad (3)$$

$$Y_i=J \quad \text{if } \lambda_{j-1} \leq Y \quad (4)$$

where,  $\lambda_1, \dots, \lambda_{j-1}$  are unknown parameters (limit points) to be estimated with the  $\beta_k$ . The probit form of this model assumes that the error  $\varepsilon_i$ , is distributed as a standard normal random variable.<sup>2</sup>

There are three forms of this model. The logit form assumes the error has logistic distribution while, the Gompit model specifies the extreme value distribution for the error term. The probit form assumes that the error,  $\varepsilon_i$ , is distributed as a standard normal random variable, hence we employed this form for our approach.

## V. EMPIRICAL ANALYSIS

This section discusses and compares the empirical results for the NPL model for both Turkey and Pakistan. We used all 110 and 100 observations from the questionnaire collected. In addition to the estimated coefficients and their corresponding z-statistics we also conducted the Fits Tests which will report the McFadden Pseudo  $R^2$  and Schwartz's Information Criterion (SIC).<sup>3</sup> Further, we give the likelihood ratio statistic, LR(K), for the joint null hypothesis that all K slope coefficients are zero and the likelihood ratio test, LR(R), for the deletion of R redundant variables from the general model to obtain the parsimonious specification. We then employ the Jarque-Bera (JB) statistic test, which checks for the normality in the residuals

Table 3 reports the ordered probit model results for the regression of NPL on the eight explanatory variables for turkey and seven explanatory variables for Pakistan. The most general specification (which includes all explanatory variables) is Model 1 while Models 2 to 5 are restricted specifications.

**Table 3**  
Ordered Probit model for non performing loans (NPL)

Turkey Banking			Pakistan banking		
Variables	Model-1	Model-2	Variables	Model-1	Model-2
Regulation	0.077		BE	0.118	
Accounting	0.120		PE	0.022	
Capital	0.037		YOS	0.357	0.319
Intervention	0.284	0.285	CA	0.104	
Capbase	0.237	0.250	YOE	0.421	0.402
Quality	0.088		CL	-0.029	
Risk	0.388	0.432	CF	-0.553	-0.539
Loans	0.159				

Note: basic education (BE); professional education (PE); years of service (YOS); number of courses attended by credit managers (CA); years of experience as credit manager (YOE); credit limit of credit managers (CL); communication facilities (CF)

For Turkey, In Model 1 only two of the eight variables are statistically significant at the 5% level: Intervention and Risk. We apply the general-to-specific model reduction method by sequentially deleting, first, variables with z-statistics below unity in magnitude then those with z-statistics below 1.5 in absolute value (to obtain Model 2) then all remaining variables with z-statistics below 1.98 in magnitude (to obtain Model 5). Model 2 has four explanatory variables, Capbase, Intervention, Loans and Risk, of which two, Capbase and Loans are not significant at the 5% level. Capbase however, is significant at the 10% level and Loans is only marginally insignificant at this level.

For Pakistan, in the most general specification, Model 1, only three variables are statistically significant at the 5 percent level: communication facilities (CF), years of experience as a credit manager (YOE), and years of service (YOS). Exclusion of the insignificant variables from Model 1 gives Model 2. The three variables retained in Model 2 (CF, YOE and YOS) remain significant.

For Turkey, In Model 3 of Table 4 with Loans excluded, Capbase is only marginally insignificant at the 5% level but significant at the 10% level. In Model 4 with Capbase excluded, Loans is insignificant at the 5% level but significant at the 10% level. Lastly Model 5 features the two variables, Intervention and Risk, which are significant at the 5%. However, because the variables Capbase and Loans were jointly significant in Model 2 and significant at the 10% level in Models 3 and 4, we argue that they should also be considered as probable determinants of NPL.

For Pakistan, in Model 3 the most general specification, only one variable is statistically significant at the 5 percent, level, being basic education (BE). However, the variables credit limit (CL), professional education (PE) and years of experience as credit manager (YOE), are significant at the 10 percent level. The exclusion of the three variables that are insignificant at the 10% level from Model 3 gives Model 4.

We then conducted the Fits test and the results of which are shown in Table 5.

**Table 4**  
Ordered Probit model for non performing loans (NPL)

Turkey Banking				Pakistan banking			
Variables	Model 3	Model 4	Model 5	Variables	Model 3	Model 4	Model 5
Regulation				BE	-0.627	-0.637	-0.732
Accounting				PE	0.211	0.213	
Capital				YOS	-0.008		
Intervention	0.366	0.303		CA	0.031		
Capbase	0.273		0.401	YOE	0.294	0.296	
Quality				CL	-0.254	-0.242	
Risk	0.500	0.444		CF	0.054		
Loans		0.189	0.526				

**Table 5**  
Fits test

		Pseudo R2	SIC	LR(K)	LR(R)
Turkey Banking	Model-1	0.153	2.933	NA	NA
	Model-2	0.143	2.748	3.212	NA
	Model-3	0.135	2.728	5.721	NA
	Model-4	0.131	2.739	6.854	NA
	Model-5	0.120	2.726	10.183	6.970
Pakistan Banking	Model-1	0.111	2.355	24.290	NA
	Model-2	0.109	2.176	23.786	0.504
	Model-3	0.109	2.264	21.970	NA
	Model-4	0.108	2.127	21.807	0.163
	Model-5	0.0825	2.040	16.679	5.292

For Turkey, as per the likelihood ratio statistic, LR, all 5 models provide statistically significant explanatory power (probability value = 0.000). In addition, all of the restricted models' estimated coefficients have positive signs and thus are consistent with theoretical expectations. The likelihood ratio tests LR(K) for the restricted Models 2-5 suggest that the removal of the individually insignificant variables from Model 1 to obtain Models 2-5 is valid.

The likelihood ratio test for the imposition of joint zero restrictions on the variable variables relative to Model 2, LR(R), is rejected at the 5% level. This suggests that one of these variables may be individually significant when the other is removed. Model 5 appears to be the favored specification because it has the lowest Schwartz criterion (SIC) and is the only model where all of the variables are individually significant. This suggests that Intervention and Risk are the major determinants of NPL.

For Pakistan, The likelihood ratio statistic LR(R) suggests that the removal of the four individually insignificant variables from Model 1 to obtain Model 2 is valid. The lower SIC of Model 2 (2.176) compared to Model 1 (2.355) confirms that Model 2 is the preferred specification. The unexpected positive signs on YOE and YOS are consistent with our finding that credit managers' decision making was greatly influenced by external factors during the period of the Pakistani banking crisis. In particular, credit managers cited personal interest and political corruption as the foremost factors influencing credit lending in these banks during this period.

The likelihood statistic LR(R) suggests that the removal of variables credit limit (CL), professional education (PE) and years of experience as credit manager (YOE) is valid and the model is statistically significant according to LR(K). The lower SIC of Model 4 (2.127) compared to Model 3 (2.264) confirms that Model 4 is preferred to Model 3. The SIC of Model 5 (2.040) is lower than that of Model 3 and Model 4 suggests that it is the preferred specification. BE has a negative coefficient, which is contrary to standard a priori expectations. However, it is consistent with our findings that credit managers' decision making during the Pakistani banking crisis was greatly influenced by external factors.

We then performed the misspecification test for Turkey and Pakistani banking systems and we the results obtained are specified in Table 6.

**Table 6**  
Misspecification test

	Model-1		Model-2		Model-3		Model-4		Model-5	
Jarque-Bera ( $\chi^2_N$ )	t-stat	prob								
Turkey Banking	1.55	0.46	2.09	0.35	2.65	0.26	2.31	0.31	2.83	0.24
Pakistan Banking	3.77	0.15	3.77	0.15	1.64	0.44	1.43	0.49	1.09	0.57

For turkey, According to the Jarque-Bera test ( $\chi^2_N$ ), there is no evidence of non-normally distributed residuals at any conventional significance level for any of the five models. On the other hand for Pakistan, the variables were also found consistent with standard a priori expectations.

## VI. CONCLUSIONS

We applied the ordered probit model models to primary data collected using the responses to questionnaires from the senior management of the major commercial banks in Turkey and Pakistan.

For Turkey, our results show that Government intervention (Intervention) is a major determinant of non performing loans (NPLs). We have also found that loans given to insiders or insider connected companies (Loans) are a weakly significant determinant of non performing loans. Our regression results further suggest that poor assessment of credit risk (Risk) and a weak capital base (Capbase) influence non-performing bank loans. Loans are often made using personal judgment rather than specialized lending techniques. Our empirical analysis however implies that Regulation, Practice and Quality are never significant explanatory variables for non performing loans or asset losses.

For Pakistan, our results show that found three variables that significantly influence NPL's are communication facilities provided to the credit managers (CF), the credit manager's years of service in the bank (YOS) and years of experience as a credit manager (YOE). Communication facilities provided to the credit managers has a negative impact on non-performing loans while credit managers' years of service and years of experience are positively correlated with non-performing bank loans. Our finding were in line with Masood (2004), which states that credit managers' decision making during the Pakistani banking crisis was greatly influenced by external factors, such as, personal interest and political corruption

## ENDNOTES

1. All variables from the survey refer to the individual credit manager's experience, background and performance.

2. A common alternative assumption is to specify the error term to have a logistic distribution, called the logit model. However, as Greene (2003) suggests that probit and logit models yield results that are very similar in practice we focus on the former.
3. The coefficient standard errors used to estimate the z-statistics use the Huber/White variance covariance matrix which is robust to certain misspecifications of the underlying distribution of the dependent variable.

### APPENDIX

#### Turkish Banking: Questionnaire

**Years of experience as credit manager:**

**Cost of the crisis (% of bank portfolio):** below 5%, 6-9%, 10-13%, 14-17%, 18-21%, 22-25%, 26% or more.

**Percentage of Non-performing loans:** below 5%, 6-9%, 10-13%, 14-17%, 18-21%, 22-25%, 26% or more (**within the bank**)

**Q1. How would you rate banking practices followed by Turkish commercial banks?**

1. Very good    2. Good    3. Neither good nor bad    4. Bad    5. Very Bad

**Q2. How would you evaluate regulation and supervision of the Turkish banking sector?**

1. Very strong    2. Strong    3. Neither strong nor weak    4. Weak    5. Very weak

**Q3. How would you rate basic accounting, auditing and disclosure practices followed by Turkish commercial banks relative to international standards?**

1. Very good    2. Good    3. Neither good nor bad    4. Bad    5. Very bad

**Q4. Do you think the overall capitalization (total assets) of the Turkish banking sector was?**

1. Very highly capitalized    2. Highly capitalized    3. Neither highly nor lowly capitalized    4. Lowly capitalized    5. Very lowly capitalized

#### Pakistan Banking: Questionnaire

Name :

Organization:

Branch :

Post held :

Sex: Age:

Salary:

<b>Marital Status</b>	Single	Married	Divorced	
<b>Basic Education</b> (Before joining the Organization)	FA	BA	MA	
<b>Professional Qualifications</b> (Before joining the Organization)	Com	B. Com	MBA	
<b>Years of Service</b> (In the Organization)	5 Years	10 Years	15 Years or more	
<b>Number of Training &amp; Refresher Courses attended</b> (During Service)	None	2 or more	5 or more	
<b>Years of Experience as Credit Manager</b>	2 Years	4 Years	6 Years or more	
<b>Credit Limit available at Personal Disposal</b> (Rupees)	100,000	500,000	10,00,000	
<b>Extent of manager's non-performing loans</b>	2%	6%	10% or more	
<b>Extent of manager's bad-loans Recovery</b>	0%	5%	10%	15% or more
<b>Extent of Communication</b> (At Branch level)	Telephone	Tel/Fax	On line Computer	

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