CHAPTER 2: THE NONPERFORMING LOAN PROBLEM: WHAT EMPIRICAL STUDIES REVEAL

2.1 IDENTIFYING NONPERFORMING LOANS (NPLs)

2.1.1 Definition of NPLs

There is no single definition of NPLs. The definition may differ from country to country depending upon bank policy. "Nonperforming Loans" are also called "Problem Loans", "Troubled Loans" or "Bad Loans". For simplicity, these terms are used interchangeably in this paper.

Every lending institution finds itself, from time to time, with loans in its portfolio for which the risk of loss is greater than anticipated when the loan was made, or in which the risk is greater than what a lender would usually be willing to assume. This may be due to a poor credit decision at the time the loan was made, adverse economic conditions, mismanagement, or to certain uncontrollable factors, such as the death of the borrower. A loan of this type is commonly referred to as a problem loan or NPL (Behren 1985b: 199).

Behren (1985a) introduced a more general definition of problem loans. "A problem loan can be defined as one in which there is a major breakdown in the repayment agreement resulting in an undue delay in collection, or one in which it appears legal action may be required to effect collection, or one in which there appears to be a potential loss. It is a loan which in the risk of loss is greater than anticipated when

the loan was made, or in which the risk is greater then a lender ordinarily would willingly assume." Therefore, problem loans require special attention on the part of the bank if it is to be collected in full within a reasonable period of time after its maturity.

Another simple definition of NPLs was given by Lindgren, Balino, Enoch, Gulde, Quintyn and Teo (1999), "Nonperforming or value-impaired loans or assets are those whose estimated value is below their original book or contractual value."

Clarke and Johnston (1995) introduced a few general definitions of problem loans. "A problem loan is one where repayment is in jeopardy, especially if the expected or anticipated source of repayment is no longer sufficiently available to repay the debt. Put another way, a problem loan can be defined as one where there has been a default in the repayment agreement resulting in undue delay in collection or in which there appears to be a potential loss." According to them, "... a problem loan is one in which the original terms or conditions have been violated or breached, often resulting in a default for nonpayment or default under the note, security, or loan agreements. A problem loan could also be one in which the original loan repayment terms have been altered because the borrower could not pay in accordance with the bank's requirements and needed extensions, renewals, or debt restructuring. A problem loan could also be one in which the collateral margin was depleted, diminished, or dissipated to the point where the bank's risk increased substantially."

Nevertheless, these definitions failed to include the specification of the period of default allowed for loans before they are treated as NPLs. This period of default or the passage of time may differ from country to country and from bank to bank due to different bank policies.

For most loans, only the passage of time and scheduled payment of interest and principal would enable banks to distinguish between good and bad loans. Walter (1991) stated that a problem loan is one in which the borrower is more than 30 days past due.

Keeton and Morris (1987) had given a different definition from that of Walter (1991). They defined a NPL in the United States as a loan that has not been charged off but is 90 days or more overdue, failing to accrue interest, or renegotiated to facilitate repayment. This definition is supported by that of Peek and Rosengren (1999) whose study was on Japanese banking problems. They define NPLs as loans that include default period for more than three months (90 days). Similarly, Yeats (1991) defined NPLs or delinquencies as loans that are 90 days or more days past due and still accruing interest, plus loans in non-accrual status. Nonaccrual loan is a loan carried on the bank's balance sheet that no longer accrues interest. Any repayments received are deducted from principal but not booked as income (Walter 1991: 29).

Along the same line, Huh and Kim (1994) broadened the definition of problem loans by grouping them into two categories. According to the two authors, whose research was on bad loan problems in Japan and South Korea, there are two categories of problem loans reported. Type A are loans those probability of repayment is nil, and Type B loans cover loans with over three months' delay in payment and loans extended to companies whose credit conditions have deteriorated as to warrant explicit loan principal recovery measures.

2.1.2 Loan classification and NPLs

Walter (1991) pointed out that at any given time, a bank is likely to have some loans in each of the following four categories:

1. Good Loans

The borrower is making scheduled interest and principal payments and the bank has no reason to suspect that the borrower will not pay back the loan in full.

2. Loans past due or otherwise in doubt

Scheduled interest or principal payments have been missed or the bank has some other information indicating that repayment of the loan is in doubt.

3. Written-down Loans

Writing reducing book value of a loan by subtracting a portion of that value from the loan and from loan loss reserves (Loan loss reserves is a balance sheet account that

deducts from total loans the portion of loan principal not expected to be paid back) (Walter 1991: 29). The bank has removed some of the face value of the loan from its books because it believes it will be able to collect only a portion of the loan.

4. Charge-off Loans

Also called write-off loans, charge-off means completely removing a loan from the balance sheet by subtracting its book value from loans and from loan loss reserves. (Walter 1991: 29). A charge-off is the amount of a loan that a bank determines is unlikely to be repaid and counts a loss (Clair 1992: 12). The value of the loan has been completely removed from the bank's books, because the banks believe it will be able to collect little or nothing from the borrower. The bank may continue to attempt to collect funds from the borrower though it has charged the loan off its book and may be carrying some collateral from the loan on its books.

Most loans stay in category 1 until repaid. Any loan in categories 2 to 4 is a problem loan.

Clair (1987) broadened the definition of problem loans to include loans that (1) have been charged off, minus those that have been recovered over a given year, (2) loans that are past due 90 days or more and still accruing, or (3) nonaccrual loans. Clair (1987) stated that NPLs include the sum of delinquent and nonaccrual loans. Because NPLs often deteriorate to the point of becoming loan losses, they are considered a predictor of future charge-offs.

Meeker and Gary (1987) provided further analysis to evaluate the information being provided on nonperforming loans as an indicator of asset quality of banks in the United States. They identified four categories of NPLs:

(a) ***Loans past due 30-89 days and still accruing*** consist of the full outstanding balances on all credits with principal or interest past due 30-89 days.

(b) ***Loans past due 90 days or more and still accruing*** consist of full outstanding balances on all credits with principal or interest past due 90 days or more.

(c) ***Nonaccrual Loans*** consist of all credits where principal and interest has been in default for 90 days or more and where the borrower has either failed to perform or is in a weakened financial condition. Loan past due 90 days or more and which are both well secured and in the process of collection are supposed to be carried in a nonaccrual status.

(d) ***Renegotiated Loans*** are credits, which have been restructured due to the financial condition of the borrower. To qualify as a renegotiated loan, the lender must grant some concession to the borrower – e.g., lower interest rate, forgive some principal – such that the renegotiated loans is on terms more favorable than a new loan to a sound borrower. Loans extended or renewed at market interest rates for example are not considered renegotiated.

Loans placed in the various nonperforming categories may differ greatly in quality depending upon bank policy. For example, loans renegotiated to include past due interest in the new note are likely in greater danger of default than notes renegotiated

to stretch principal payments. In other instances, a conservative banker may elect to carry sound notes as past due rather than renegotiating them to place more pressures on the borrower. Thus, the informational value of NPLs data is likely to vary from bank to bank (Meeker and Gray, 1987: 163).

Studies undertaken by other authors found that NPLs can be classified into three categories as follows:

1. Substandard Loans

Regarding substandard classifications, the Federal Deposit Insurance Corporation's (FDIC) Manual of Examination Policies stated: " The substandard category includes loans which have positive and well defined weaknesses which jeopardize the orderly liquidation of the debt. Such loans are inadequately protected by the current sound worth and paying capacity of the obligor, or pledged collateral, if any. They are characterized by a degree of risk which poses the distinct possibility that the bank will likely sustain some loss if the deficiencies are not corrected (FDIC's Manual, 1975: Sec. H, p 5).

From the definition given by Bank Negara Malaysia (BNM), substandard accounts includes loans or advances or other credit facilities or portions thereof, which involve more than a normal risk of loss due to certain adverse factors, but which are at this stage not considered as doubtful or bad. These adverse factors may include sporadic delays in debt-servicing, unfavorable financial condition, insufficient operating cash-

flow to meet current debt commitments, insufficiency of security and other adverse factors which give rise to some doubts as to the ability of the borrower to comply with the present loan repayment terms. Although no specific provision is required at this stage, special and corrective attention or action needs to be taken by the lending institution to arrest any further deterioration in loan quality and to enhance its quality in the near future (BNM 1987: 7).

2. Doubtful Loans

Doubtful credits include those that have a probable loss, the amount of which cannot readily be determined (Spong 1983:41-42). Another definition note that doubtful loans are those with "extremely high" risk of default but still a chance for partial collection (FDIC's Manual 1975:Sec H: 5). Another similar definition is that of BNM: doubtful accounts consists of loans or advances or other credit facilities or portions thereof with respect to which collection in full is impossible and there is a high risk of ultimate default. Hurt and Felsovalyi (1998), on the other hand, defined doubtful credit as one for which full repayment appears to be questionable on the basis of available information, and which therefore suggest an eventual loss the amount or timing of which is not yet determined.

3. Loss or bad loans

Spong (1983), BNM (1989) and FDIC's Manual (1975) shared the similar definition of loss or bad loans. They define loss or bad loans as loans deemed "uncollectable and worthless". Loans classified as loss are considered uncollectible and of such

little value their continuance as active assets of the bank is not warranted. Assets classified as loss must be charged off (Woo 1969: 700). Doubtful and bad loans are considered defaults. A defaulted loan is deemed to be resolved when the most recently reported outstanding balance is reduced to zero through repayment, write-offs or reclassification to a performing status (Hurt and Felsovalyi 1998: 45).

2.2 WHAT DO NONPERFORMING LOANS INDICATE

2.2.1 Relationship between Bank Efficiency and NPLs

Berger and DeYoung (1997) were the first to investigate the relationship between bank efficiency and problem loans directly. For a sample of United States commercial banks, the authors attempted to identify whether managers' operating decisions or exogenous events are the key determinant of a bank's loan problems. They concluded, "neither hypothesis dominates the other", but rather that there is evidence of both. The authors employed Granger-causality techniques to test a set of hypotheses that describe the intertemporal relationships among problem loans, cost efficiency and financial capital. They referred to these hypotheses with the mnemonic "bad luck", "bad management", "skimping" and "moral hazard". The results of their analysis suggested that the intertemporal relationships between loan quality and cost efficiency runs in both directions.

1. "Bad Luck" Hypothesis

The data provided support for the bad luck hypothesis – increase in NPLs tends to be followed by decreases in measured cost efficiency, suggesting that high levels of problem loans cause banks to increase spending on monitoring, working out, and

selling off these loans, and possibly become more diligent in administering the portion of their existing loan portfolio that is currently performing.

2. "Bad Management" Hypothesis

For industry as a whole, the data favor the bad management hypothesis over the skimping hypothesis – decreases in measured cost efficiency are generally followed by increases in NPLs, evidence that bad management practices are manifested not only in excess expenditures, but also in subpar underwriting and monitoring practices that eventually lead to NPLs.

3. "Skimping" Hypothesis

The data, however, favor the skimping hypothesis for a subset of banks that were consistently efficient across time – increase in measured cost efficiency generally precede increases in NPLs, suggesting that these banks purposely trade short-run expense reduction for long-run reductions in loan quality.

4. "Moral Hazard" Hypothesis

Decreases in bank capital ratios generally precede increases in NPLs for banks with low capital ratios, evidence that thinly capitalized banks may respond to moral hazard incentives by taking increased portfolio risks. "Moral Hazard" hypothesis is the classical problem of excessive risk taking when another party is bearing part of the risk and cannot easily charge for or prevent that risk-taking. Under the hypothesis, banks with relatively low capital respond to moral hazard incentives by

increasing the riskiness of their portfolio, which results in higher NPLs on average in the future.

Each of these results has a relatively small effect on banks on average, but may have substantial effect on individual banks that are most subject to bad luck, bad management, skimping and moral hazard.

2.2.2 Relationship between Skills and Policies and Severity of NPLs

Jordan (1998) has done a study which attempted to determine whether a "skills" hypothesis or a "policies" hypothesis better explains differences in the severity of loan problems. An analysis of bank efficiency is used to identify which of these two hypotheses better explains the disparity in the problems experienced by New England banks from the year 1989 to 1992.

This analysis of Jordan (1998) differs from the Berger and DeYoung (1997) study in that it does not attempt to determine whether exogenous shocks (those outside the control of managers) are contributing factors in the determination of problem loans. This study concedes that outside shocks play a major role in most banking crises. Instead, this analysis asks whether differences in managers' operating decisions can help explain why some banks have tremendous difficulty when faced with an external shock, while others escape relatively unscathed (Jordan 1998: 23).

Because banks that deliberately choose to underwrite risky loans may not be "skimping" on resource allocation, the author does not use the "skimping" terminology defined by Berger and DeYoung (1997).

1. Managerial "Policies" Hypothesis

If significant differences in lending policies are present among banks, and some have aggressive policies that result in a risky bank while others have more conservative policies that result in a safer banks, those banks measured to be the most efficient should also have the greatest problems with their loan portfolios. Thus, a positive relationship between measured bank efficiency and the severity of problem loans would be evidence in support of the hypothesis that some banks are willing to accept a riskier loan portfolio in return for higher expected profitability.

Because a risky loan portfolio can result either from managers skimping on resources allocated to the underwriting process or from managers deliberately accepting riskier loan customers in return for higher expected returns, the "policies" hypothesis may not imply a positive relationship between problem loans and both cost and profit efficiency. If problem loans arise primarily because managers are skimping on resources allocated to the loan origination and monitoring process, one would expect a positive relationship between cost efficiency and problem loans. To the extent skimping on costs improves profitability, a positive relationship between profit efficiency and problem loans would also be expected. However, if problem loans arise because managers deliberately extend risky loans with high potential returns but at the same time they do not skimp on the resources allocated to the loan process,

one would expect a positive relationship between profit efficiency and problem loans but no relationship between cost efficiency and problem loans.

2. Managerial "Skills" Hypothesis

If the presence of managers who have difficulty containing costs or raising revenues signifies poor managerial skills, then inefficiency may well be a bank-wide phenomenon. Poor managerial skills thus may manifest themselves in managers' difficulties in identifying risky loan applications and in resolving problem with existing loan customers. If this is the case, then those banks measured to be the least efficient should also have the greatest problems with their loan portfolios. A negative relationship between measured bank efficiency and the severity of problem loans would be evidence in support of the "skills" hypothesis. If deficient managerial skills manifest themselves in difficulties controlling operating expenditures, one would expect a negative relationship between cost efficiency and problem loans and, to the extent poor cost controls affect bank profitability, a negative relationship between profit efficiency and problem loans. Alternatively, if skill deficiencies manifest themselves in managers' inability to raise revenues effectively, a negative relationship between profit efficiency and problem loans would be expected, but no relationship between cost efficiency and problem loans.

The "policies" hypothesis was tested by looking at the relationship between cost efficiency and problem loans while the "skills" hypothesis was examined by using the relationship between the profit efficiency and problem loans. In general, the

results of the tests suggested that no relationship exists between cost efficiency and problem loans, but they show a positive significant relationship between profit efficiency and problem loans. Thus, the data favor the "policies" hypothesis over the "skills" hypothesis.

The evidence suggests that since no relationship between problem loans and cost efficiency was found, it is unlikely loan problems arose because some banks were willing to skimp on cost involved with loan origination process and thus it goes against the skimping version of the "policies" hypothesis. These results are consistent with those found by Berger and DeYoung (1997).

The analysis has shown that the problems experienced by New England banks were not entirely determined by events beyond the control of bank managers. Rather, conscious decisions by bank managers regarding the riskiness of their loan portfolio as well as the level of capital help explain why some New England banks were able to survive the real estate crisis while others failed.

2.2.3 The Usefulness of Substandard Loan Ratio

Benston and Marlin (1974) conducted an analysis of the usefulness of substandard loan data in the United States. Those loans whose quality is questioned, or called the NPLs are classified into three categories: loss, doubtful and substandard. The first two categories represent loans that obviously are, or very likely to become, uncollectable. The third category, substandard loan, has held the greatest interest for

regulators and economists because the amount of these loans appears to be an up-to-date and "online" indicator of credit quality. The indicator used almost always is the ratio of substandard to total loans at a bank – the substandard loan ratio (SLR).

The usefulness of the SLR are identified by the authors as follows:

1. The SLR measures the impact of monetary policy on credit conditions

As monetary policy is tightened (as measured by higher interest rates and/or a reduction in the change or rate of change of the monetary supply or bank credit), banks may impose higher credit-granting standards and thereby raise credit quality, and thus lower their SLRs. However, if monetary policy becomes very restrictive, banks might be unable to grant additional credits or loan extensions. This condition might be reflected in higher SLRs as examiners criticize loans that are behind in payments. If, in addition, monetary policy creates or exacerbates an economic downturn, this condition too might be reflected in higher SLRs as examiners criticize loans of borrowers whose ability to repay has deteriorated or whose collateral has declined in value. Thus, the SLR might provide the monetary authorities with early "feedback" on the possible adverse effects of restrictive monetary policy (Benston and Marlin 1974: 25). As Wojnilower (1962: 64) notes, for the maker of economic policy, these (bank examination) records, intelligently exploited, may furnish up-to-date guides to the nature and speed of the response of businesses and banks to changes in economic circumstances and policies and eventually a means for better understanding and prediction of these responses.

2. **The SLR provides a useful measure of the quality of bank management**

Examiners compute the SLRs as a means of determining whether or not a bank is well managed. If it is high, relative to other banks, and/or to previous experience, the supervisory authorities regard this as quantitative evidence that the bank may be in "trouble" or at least is accepting risky loans and therefore should be more stringently supervised. In this event, knowledge of changes in the SLR may be useful for bank supervision but not for the management of monetary policy.

3. **Changes in the quality of bank loans may reflect real changes in the economic environment independent of monetary policy**

If real, as contrasted with monetary, events adversely affect the ability of borrowers to repay their loans or reduce the value of the collateral pledged, increases in the SLR may alert the monetary authorities before these conditions show up as business discontinuance or failures.

2.2.4 NPLs as a key indicator of the magnitude of banks' difficulties

From the report of Gonzalez-Hermosillo (1999), a consistent finding from the data (in the United States, Mexico, and Columbia) was that banks' NPLs increased sharply and their capital ratios deteriorated rapidly – signaling growing distress – shortly before they failed. These NPLs provided a clear signal of the increasing probability of near-term bank failure. (Several periods before failures occurred, banks that would eventually fail had virtually the same level of NPLs and capital as banks that would survive).

Similarly, Hardy (1998) pointed out that rapid erosion of banks' capital as they absorb mounting losses is both a signal and a component of banking system distress. Even if banks continue to make a profit, a rapid increase in the share of loans that are nonperforming or impaired is a clear danger signal. Deteriorating loan quality has been at the core of most systemic banking crises. The level of NPLs is thus a key indicator of the magnitude of banks' difficulties, even if banks themselves tend to be overoptimistic in their assessment of repayment prospects.

Thus, the danger signal may help to prevent bank failures or banking system distress by raising more equity capital, and/or making additions to loan loss reserves from current-period net income.

2.2.5 NPLs as an Indicator of Asset Quality

Meeker and Gary (1987) had conducted a research on banks in the Tenth Federal Reserve District, United States from December 1982 to March 1984, to evaluate the information being provided on nonperforming assets as an indicator of asset quality.

The results of their study suggest that nonperforming loan information can be very useful in reducing the risk of mistakenly identifying a bank with problem assets as a strong bank, particularly when the information is timely.

2.3 FACTORS CONTRUBUTING TO NONPERFORMING LOANS

(a) ENDOGENOUS FACTORS

Nonperforming Loan problem was never due to a single cause. For a given bank, NPLs may be caused to some extent either exogenous factors or endogenous factors. The cause may be endogenous to the extent that the nonperformance is from bad bank management or skimping on resources (i.e., due to actions taken by management), etc.

2.3.1 Poor Management and Poor Lending Policies

Low measured cost efficiency is a signal of poor senior management practices, which apply to both day-to-day operations and to manage the loan portfolio. Subpar managers do not sufficiently monitor and control their operating expenses, which is reflected in low measured cost-efficiency almost immediately. Managers in these banks also do not practice adequate loan underwriting, monitoring, and control. These poor managers may (1) have poor skills in credit scoring and therefore choose a relatively high proportion of loans with low or negative net present values, (2) be less than fully competent in appraising the value of collateral pledged against the loans, and (3) have difficulty monitoring and controlling the borrowers after loans are issued to assure that covenants are obeyed.

In contrast to the almost immediate reduction in measured cost efficiency, poor underwriting and monitoring practices lead to high numbers of NPLs only after some

time passes, the loan portfolio becomes seasoned, and delinquencies begin to mount (Berger and DeYoung 1997: 853).

If the presence of managers who have difficulty containing cost or raising revenues signifies poor managerial skills, then inefficiency may well be a bank-wide phenomenon. Poor managerial skills thus may manifest themselves in managers' difficulties in identifying risky loan applicants and in resolving problems with existing loan customers. Those banks measured to be the least efficient should also have the greatest problems with their loan portfolios (Jordan 1998: 27).

Differences in the quality of credit management can well explain the remaining variation in loss rates. Some banks may have done a poor job of assessing borrowers' credit worthiness. For example, they may have failed to project applicants' cash flow carefully or evaluate their collateral realistically. Other banks may have neglected to monitor borrowers' progress after the loans were granted to ensure that funds were being properly spent. Any of these deficiencies in credit management could cause a bank to suffer higher losses than other banks even if the bank itself believed it was making loans with the same probability of default (Keeton and Morros 1987: 11).

Poor lending policies are a key danger that may also prove fatal. The key element of bank management is making sure that deposits (which do not belong to the bank but to the depositors) are lent in such a manner so as to yield a proper remuneration and

be reimbursed to the bank. The following are poor policies or practices that were identified (de Juan 1991: 3-4):

1. Risk concentration

This means making loans representing a high proportion of the bank's capital to one single borrower or group of borrowers or to a given sector or industry. This practice may be the result of the free will of the banker (who believes in the eternal health of a given borrower), or the result of irresistible borrowers pressure *vis-à-vis* the banker, when unable to service their debt or even pay their operational overhead. Risk concentration is frequently mixed with connecting lending, as will be described below.

2. Connected Lending

This means a situation where the bank lends money to companies owned (totally or partly) by the banker or by the bank. Since ownership, especially in the case of bankers, is frequently indirect (i.e., through other subsidiaries or through decision-making relationship), the concept of connection is used rather than ownership, because of its wider connotation. Lending to borrowers connected to the bankers, beyond certain limits, is frequently fraudulent. In most cases, this kind of lending contains a high risk because of the banker's tendency to use the bank as an instrument to finance his business, irrespective of their ability to repay, and concentrate large proportions of the bank lending on them. Concentration, default and permanent rollover of loans are very common with connected lending. Most bank failures are also the result of connected lending.

3. Mismatching, or those lending at terms out of proportion with those of deposits

Transforming terms forms part of the essence of banking, because money is fungible and deposits stay longer with the bank than their legal terms would permit. But when the terms of lending are overstretched far beyond those of liabilities or become so because of forced rollovers, serious liquidity problems may arise. If the bank that mismatches its assets and liabilities is able to solve the liquidity situation, it may have had to pay excessive rates for its new funding. And, if it operates with fixed interest rates, it may incur losses in the transformation. That is what interest risk is, a problem which is particularly serious when the bank operates in foreign currency, and where, besides the borrowers solvency, additional risks are involved, such as transfer risks and the rate of exchange risk.

In any case, if mismatching is the result of continuous roll-overs or rescheduling because of the borrowers inability to serve their debt, the financing of those NPLs may also cause losses.

4. Overly optimistic assessment

Overly optimistic assessment of borrower's prospects, including failure to assess all possible risks for borrowers. This includes inadequate assessment of quality of management. Such loans may be made under political pressure.

Bank lending practices in some South-East Asian Countries, like Indonesia, Malaysia, Thailand, South Korea, and Philippines, have traditionally relied on collateral rather than credit assessment and cash flow analysis, making banks especially vulnerable to excessive risk taking and declines in asset values. For example, during the years of high economic growth, credits were increasingly unsound. When the exchange rate devaluation and contraction in demand rapidly eroded companies' repayment capacity, banks and supervisors were suddenly faced with a sharp increase in loan-loss provisioning needs, declines in collateral values, eroding capital bases and increasing NPLs (Lindgren, Balino, Enoch, Gulde, Quintyn, and Teo 1999: 14). Other inadequate lending practices including connected lending, and high exposure to individual clients, aggravated the NPL problem.

2.3.2 Skimping on Resources: Expense Reduction

The amount of resources allocated to underwriting and monitoring loans affects both loan quality and measured cost efficiency. The critical decision of the bank lies in the trade-off between short-term operating costs and future loan performance problems. A bank maximizing long-run profits may rationally choose to have lower costs in the short-run by skimping on the resources devoted to underwriting and monitoring loans, but bear the consequences of greater loan performance problems and the possible costs of dealing with these problems in the future. The reduced effort devoted to screening loan customers, appraising collateral, and monitoring and controlling borrowers after loans are issued makes the bank appear to be cost efficient in the short-run because fewer operating expenses can support the same

quality of loans and other outputs. The stock of NPLs remains unaffected in the short-run, but as time passes, a higher proportion of borrowers becomes delinquent on their loans (Berger and DeYoung 1997: 853). Thus, skimping on the resources may increase the percentage of loans turning sour.

A bank that fails to provide sufficient resources for credit administration during periods of rapid growth may have higher NPLs in the future. If the bank pursues more rapid loan growth but fails to increase resources or skimping resources devoted to credit administration, the new loans may not be properly monitored overtime. Close monitoring is needed to spot troubled credits early, before they grow in size (Clair 1992: 10). The misallocation of inputs can result in lower loan quality, which can contribute to higher NPLs rate.

2.3.3 Weaknesses in Risk Management by Lenders

Credit Risk or default risk is inherent in banking. All money lending involves the risk that the borrower will not make due payments, or will not do so on time. It should be borne in mind that credit risk is not confined to the risk that the borrower is unable to repay, in full, sums outstanding. It includes the risk of payments being delayed and of payments having to be rescheduled. This may amount to no more than a formalized delay, or it may involve special provisions and ultimate partial write-offs and/or changing the nature of the debt outstanding.

Country risk does not refer to loans to a particular country exclusively, but rather to loans that contain an element of cross border risk, i.e., lending in one currency to a debtor country where payment has to be made by that country in a non-indigenous currency. The element of risk covers not only the country itself, but also the private borrower of that country and in the bank with headquarters in that country. The ultimate risk is the inability to convert from indigenous currency into the currency in which the loans are denominated (SEACEN 1983).

Internationally, there has been the important growth of country risk (as one form of credit risk), associated with lending to foreign governments, their agencies or to foreign private sector companies, but where debt servicing payments may be dependent on the actions of government. This lending is no longer largely composed of the traditional short-term trade finance, but has in many cases provided the funding of current account deficits. It has added a new dimension to credit risk, in that it is no longer sufficient to consider the creditworthiness of the individual borrower, but also consider the likelihood of the borrower having sufficient foreign exchange (in the case of a government), or being allowed access to sufficient foreign exchange (in the case of a company) (Harrington 1987: 100). When the credit risk is high (perhaps as a result of changed economic conditions), debtors will be unwilling or unable to repay their debt and this will give rise to the NPLs in the banking and financial sector.

2.3.4 Fraud and Embezzlement

Illegal activities such as fraud and embezzlement were identified to be significant factors, contributing to the rising trend of NPLs. Fraud refers to problems caused by misinterpretations by the borrower regarding the business' financial status, the purpose of the loan, or the ability to repay (Behren 1985b).

According to de Juan (1991), fraud may have been one of the causes of losses for a bank at an earlier stage. This is frequently the case when a bank is set up or acquired by speculators or businessmen having their own business interests. Also, fraud is involved in "cosmetic" management, to the extent it is a way of hiding the truth from the public, in a business that is based on confidence.

Fraud could be a special case of loan growth being correlated with declines in loan quality. Low loan quality may be the result of the fraudulent intent of the lenders but in all likelihood that of the borrowers (Clair 1992:11).

2.3.5 Relationship between Loan Growth and Loan Quality

Much analysis drew the conclusion that there was a relationship between rapid growth of lending activity and deterioration of loan quality following the failure of numerous depository institutions in the 1980s in the United States. To establish a relationship between growth and quality requires examining commonly used quality ratio, such as NPLs ratios and charge-off rates. These measures are proxies for the actual probability of a loan defaulting.

The evidence from Texas banks from 1976 to 1990 presented in a study done by Clair (1992) indicates that loan growth through additional lending to new or existing customers initially improves measured credit quality but lowers quality after a lag.

The author found that loan growth through the acquisition of other banks has different effects on loan quality, depending on the type of acquisition. The acquisition of failed banks with assistance from the Federal Deposit Insurance Corporation (FDIC) typically improves credit quality. In contrast, loan growth through mergers and acquisitions of banks without any FDIC assistance typically lowers loan quality.

According to Clair (1992), it is fully possible for loan growth to have no effect on loan quality or even positive effects:

1. During the recovery and expansion phase of a business cycle, lending increase because of strong loan demand. The strength of the economy also increases loan quality. Consequences, loan quality may be correlated with an improvement in the economy, as NPLs are likely to decline in a strong economy.

2. On the other hand, the author also identified that structural changes in the financial markets could also generate a positive relationship between loan growth and loan quality. For example, removing restrictions from banks that limited their ability to serve the needs of borrowers could increase loan growth at banks. At the same time, it might open access to new customers for banks that are, on

average, higher-quality borrowers or that permit greater diversification (Clair 1992: 10).

However, strong loan demand may not always result in improved loan quality. If the driving force behind strong loan demand is a speculative bubble, then the relationship between loan growth and loan quality is distorted.

The evidence presented in this paper by Clair (1992) indicates that a statistically significant relationship exists between loan growth and loan charge-off rates after a lag. These empirical results are in agreement with specific examples of rapidly growing banks that experienced declines in loan quality and eventually failed.

The bank attempting to grow will more likely attract lower-quality borrowers on average and experience lower loan quality in the future This will certainly cause loans to go bad in increasing number and thus cause NPLs to crop up.

2.3.6 Relationship between Loan Growth and Loan Losses

In seeking to investigate the relationship between loan growth and loan losses, Keeton (1999) examined quarterly data of commercial banks on each of the 50 states and the District of Columbia of the United States over the period 1982 to 1996. He used loan delinquencies as the proxy for loan losses because loans usually become overdue before they are written off as uncollectable.

The author examined how data on loan growth credit standards and loan losses can be used to test the view that faster loan growth leads to higher loan losses. There are two possibilities of relationship between loan growth and loan losses:

(a) Positive relationship between loan growth and loan losses

Most of the reasons usually given for faster loan growth leading to higher loan losses involved supply shift – that is, increase in banks' willingness to lend. When such a shift occurs, banks typically seek to increase their lending in two ways. First, they reduce the interest rate charged on new loans. Second, they lower their minimum credit standards for new loans. For example, they reduce the amount of collateral that a borrower must have to back his loan, accept borrowers with weaker credit histories, or they require less proof that the borrower will have enough cash flow to service his debts. Such a reduction in credit standards increases the chances that some borrowers will eventually default on their loans. Thus assuming banks lower credit standards as well as reduce interest rates, increases in lending due to supply shifts will lead to higher loan losses in the future (Keeton 1999: 58).

(b) Negative Relationship between Loan Growth and Loan Losses

Keeton (1999) found that faster loan growth need not lead to higher losses, if the source of the increased lending is something other than a shift in supply. Two possibilities were considered:

(i) Demand Shift

For this first kind of shift, an increase in loan demand unrelated to borrowers' underlying creditworthiness will tend to boost loan growth and raise credit standards, reducing the likelihood of future loan losses. Suppose that business decided to raise a higher proportion of funds from bank (for example, because internal cash flow declines or capital market borrowing becomes more expensive). Faced with increased demand for credit, banks will raise their interest rates and tighten credit standards. Unless the supply of funds to banks is completely inelastic, total bank lending will increase. The likelihood of future loan losses will decline, however, as the tightening in credit standards raises the average creditworthiness of bank loan customers.

(ii) Productivity Shift

An overall increase in the productivity of borrowers' investment projects will also tend to boost loan growth and reduce the likelihood of future loan losses, although credit standards may decline in this case. Consider an increase in productivity due, for example, to improved technology or lower oil prices. Such a shock will increase the chances that a borrower of given characteristics can better repay his loan, allowing banks to relax their collateral requirements or accept borrowers with poorer credit histories. The productivity shock will also encourage borrowers to undertake larger investments, increasing their demand for credit. The combined effect of the easing in credit standards and the rise in each borrower's demand for credit will be to boost bank loan growth. Regardless of what happens to credit standards, however,

loan losses are likely to fall, because any worsening in the mix of borrowers is likely to be outweighed by the increase in each borrower's creditworthiness due to the productivity shocks (Keeton 1999: 61).

However, the author found that, on balance, the data provide some support for the view that faster loan growth leads to higher loan losses. The strongest support comes from the bank call report data, which showed that states experiencing unusually rapid loan growth over the period 1982-1996 tend to experience unusually big increases in delinquencies several years later.

2.3.7 Moral Hazard Incentives

The moral hazard problem has arisen because each bank expects that losses will be borne ultimately by the depositors or the deposit insurers, namely, the central bank or the government (Hardy and Lahiri 1992: 10). According to Gonzalez-Hermosillo (1999), moral hazard can be created when banks take excessive risks by lending in situations where the short-run pay off (for example, in the form of up-front fees) can be very high, but for which the long-term prospects of repayment are dim and the associated risks are expected to be absorbed by a third party, such as the country's government or international financial institutions.

Moral hazard is the classical problem of excessive risk-taking when another party is bearing part of the risk and cannot easily charge for or prevent the risk taking. Banks with relatively low capital respond to moral hazard incentives by increasing the

riskiness of their loan portfolios, which results in higher NPLs on average in the future (Berger and DeYoung 1997: 854).

The presence of deposit insurance creates incentives for taking on excessive risk (moral hazard) (Kane 1989). The effects of moral hazard are likely to be negligible when the banking system is tightly controlled by the government or by the central bank. On the other hand, when financial liberalization takes place (as it has been in many countries), the opportunities for risk taking increase substantially. Thus, if financial liberalization takes place in countries with deposit insurance, and it is not accompanied by a well-designed and effective system of prudential regulation and supervision, then excessive risk taking on the part of bank managers is possible (Demirguc-Kunt and Detragiache 1998:86).

A moral hazard crisis can develop when banks are able to borrow funds in the basis of explicit or implicit public guarantees (Akerlof and Romer 1996). When banks are under-regulated, they may use the funds in very risky or even criminal ventures. Krugman (1998) argues that the Asian crisis is a reflection of excess gambling and stealing by banks that gained access to domestic an foreign deposits by virtue of state guarantee (Krugman 1999).

East Asia's financial crisis was the inevitable result of overinvestment resulting from a widespread belief among creditors that they would be bailed out if their investments went bad. An argument of moral hazard has been pushed forward.

Creditors felt secure that they would be repaid for lending to specific projects that were controlled by companies with close connections to the government. Once these investment projects turned out not to be profitable, the firms were not able to service the large sum of loans. The outcome is the mounting of NPLs in the banking and financial sector.

2.3.8 "Evergreening"

Many of the current prudential indicators, such as the ratio of NPLs to total loans, are backward looking or can be manipulated by weak banks through techniques such as the "evergreening" of loans (for example, converting overdue loan principal and interest payments into new loans) (Rennhack 2000).

The most serious problems of a bank are not in loans classified as overdue; they are smaller loans and are being dealt with. The worst losses of a bank are hidden in the portfolio that is classified by the banker as current portfolio or "good portfolio". This means that when a banker wants to avoid provisions to a given level of profits and dividends, he will not classify a bad loan as overdue, doubtful or a write-off. Instead, he will automatically reschedule the loan over long periods of time, which will avoid classifying it as overdue. Interests will be refinanced. This is a snowball process that may lead to disaster because those loans become more and more difficult to collect, and the borrower's bargaining position is strengthened because of the bank's failure to take effective recovery action. The culture of nonpayment develops. Those practices are very typical of loans to companies where the bank or

the bankers have stocks, or where the banks have concentrated disproportionate sums of money. A very significant example of the latter is that of banks substantially involved in foreign debt of Less-Developed-Countries (LDCs) when they keep rescheduling the debt over and over again without making the necessary provisions (de Juan 1991). This will undoubtedly further develop NPLs in the banking and financial system.

2.3.9 Lack of Diversification on Loan Portfolio

While it is to be expected that bad loans will rise in a time of severe recession, the problem of rising NPLs is exacerbated, in a number of cases, by insufficient diversification of the loan portfolio. With all lending, whether by banks or by other financial institutions, concentrated on individual lenders, individual groups of lenders or individual economics sectors, this can only increase risk.

The composition of the loan portfolio may affect loan quality and thus increase the NPLs. During the period under study by Clair (1992) on Texas banks from 1976 to 1990, oil prices dropped sharply, and the commercial real estate market was devastated by overbuilding and high vacancy rates. Consequently, a bank that was heavily exposed to energy or real estate borrowers would likely have higher NPL ratios or charge off rates than a bank whose loan portfolio was better diversified.

Lack of diversification in its loan portfolio leaves the bank vulnerable to a change in the fortunes of a single industry. Most banks are relatively small and lend primarily

to local businesses, which may be linked to a particular industry. Pantalone and Platt (1997) conducted a study to predict commercial bank failure since deregulation. The sample included 113 commercial banks that failed in 1983 and 1984 in the United States. They claimed that commercial and industrial loans are relatively large in the United State commercial banks, if compared to commercial loans. Thus, banks with a high proportion of their loan portfolio in commercial and industrial loans may be at greater risk than banks that have a more diversified portfolio. Lack of diversification or excessive sectoral concentration of loans may cause bank's portfolio to turn sour and aggravate the NPL problem.

Keeton and Morris (1987) discovered that specializing in a particular loan category could increase the likelihood of a high loss rate in two ways. First, loans in the category could have a higher average probability of default than loans in other categories, raising the bank's expected loss rate. Second, by investing more in the category, the bank could reduce the overall diversification of its loan portfolio, increasing chances that the actual loss rate ends up well below or well above the actual loss rate. For example, in the late 1970s and 1980s in the United States, the agricultural and energy loans had a higher profitability of default than loans to other sectors. A bank that held only agricultural or energy loans was obviously undiversified, and was highly exposed to loan losses.

(c) EXOGENOUS FACTORS

Exogenous factors are the causes of NPLs originating outside the banking system.

2.3.10 Heavy Government Intervention and Tight Government Control of the Banking Sector

Huh and Kim (1994) attempted to measure the bad loans rate based on indirect data for Japan and South Korea to shed some light on the implications of institutional and risk-sharing arrangements observed in the two economies.

In some countries, government appears to have wielded a much more direct and much tighter control over the banking sector. Tight government control of the banking sector gave rise to two types of moral hazard problems in South Korea's credit markets. On the supply side, banks had little discretion or incentive to control risk by screening projects and monitoring corporate performance. Declaring any sizable industrial enterprise as bankrupt or writing off bad loans on banks' balance sheets required the explicit consent of the government. In practice, the government averted bankruptcy at large enterprises by directing banks to provide relief loans or rescheduling debt.

Extreme control and guidance of banking institutions had adverse incentive effects on the demand side of the loan market at well. The strict low interest rate ceiling made the cost of debt financing very cheap for firms in the targeted sectors. This encouraged firms to take on excessive high levels of debt.

High leverage made the corporate sector as a whole very vulnerable to external shocks and economic fluctuations. The problem grew and enterprises began encountering difficulties servicing their debt. The government responded by taking greater involvement in banks' credit allocation to bail out troubled firms and industries, with the result that banks were saddled with ever growing amount of de facto NPLs (Huh and Kim 1994: 25-56). On the other hand, an autonomous bank-customer relationship has yet to develop in South Korea due to continued government intervention in credit allocation. As a result, principal transaction banks have had little incentives to monitor corporations.

Private incentives are muted in some countries, such as South Korea, due to the government ownership of banks until recently and due to continued heavy intervention despite normal privatization. Other things equal, banks with lower incentive to monitor undoubtedly accounts for a significant part of the higher bad loans rate for heavy government intervention countries.

Although South Korea clearly has followed Japan in terms of economic development, the notable difference is that South Korea's banks, as government-owned institutions, were much more stringently regulated than Japanese banks, which have been privately owned. This affords an opportunity to assess whether this greater degree of regulation of banks in South Korea has engendered greater costs or inefficiencies (Huh and Kim, 1994: 18).

The authors derived an estimate of the bad loans rate which is unavailable from published sources. The key result of their paper found that the bad loans problem has been unambiguously more severe in South Korea than in Japan. They attributed the difference to the lack of discretion South Korean banks have had in allocating funds and their lower incentive to control bankruptcy risk through screening and monitoring corporate borrowers (Huh and Kim, 1994: 19).

Their results also suggested that while banks can make a substantial contribution to economic growth, heavy government intervention also can substantially impair banks' incentive to monitor and control risk. The authors suggested that the higher bad loans rate in South Korea is but one manifestation of the associated costs of "unduly" repressing the banking system.

2.3.11 The Bursting of Speculative Bubbles and Economic Downturn

If the driving force behind strong loan demand is a speculative bubble, then the relationship between loan growth and loan quality is distorted. Stiglitz (1990: 13) casually defines a bubble as occurring when the reason that the price is high today is only because investors believe that the selling price will be higher tomorrow, when "fundamental" factors do not seem to justify such a price.

On the other hand, Shiller (1989) has shown evidence that speculative bubbles may exist for stocks, bonds, and residential real estate. The decade of the 1980s saw an

increase in asset-based lending in both real estate and corporate loan transactions in the United States. Because repayment of asset-based loans depends primarily on the future selling price of the asset being financed, the collapse of a speculative bubble could lead to deterioration of loan quality, especially among asset-based loans, such as real estate loans and loans for corporate restructuring. The bursting of a speculative bubble often results in an economic downturn that will likely cause deterioration in the loan portfolio of all banks, and thus contributes to the accumulation of NPLs.

The first obvious outcome of the financial crisis that first broke in mid-1997 in the East Asian countries was the accumulation of NPLs. In the banking system, what began as a speculative attack on currencies quickly turned into a stock market meltdown and triggered a regional banking crisis.

Although the financial systems in the region are quite varied and hardly clones of the Japanese "main bank" system, as often wrongly alleged, they have nevertheless become prone to the same financial-property "bubble" phenomena, albeit for somewhat different reasons. Arguably, the more bank-based systems of Thailand, South Korea, and Indonesia, had a stronger rexus of this sort compared to Malaysia's much more stock-market-oriented financial system. Rapid growth, on the basis of exported industrialization from the late 1980s, gave rise to unregulated financial expansion, which contributed to a property boom and asset price bubbles, both in the

more market-oriented or "Anglo-Saxon" Malaysia as well as the more "bank-oriented" Thailand (Jomo 1998: 7-8).

The lending boom increasingly involved asset purchases fueled by rising property and stock prices. With the currency collapse, the assets acquired by short-term portfolio and other investors in the region depreciated correspondingly in value, precipitating an even greater sell-out and panic, causing herd behavior and probably causing contagion to spread across national borders to the rest of the region. The burst of the bubbles eventually accumulated more NPLs in the banking and financial system, which is the immediate and most obvious outcome of the currency and financial crises.

2.3.12 Adverse Consequences of Financial Liberalization

The NPL problem in the banking and financial sector had their origins in financial liberalization policies introduced in each of the crisis economies in the late 1980s and early 1990s that led to a very rapid expansion of the financial sector, and enthusiastic lending by foreign creditors. Entry requirements into financial services were loosened, allowing new private banks to open. Banks were given much greater leeway in their lending decisions, and stock and bond markets began to grow and develop. New institutions were developed, such as the Bangkok International Banking Facilities (BIBF) in Thailand, that were designed to offer new financial services and attract investment, and were actively encouraged to borrow offshore to

finance their activities. This combination led to a rapid expansion in both offshore and domestic lending, with a resulting investment boom (Sachs and Radelet 1999).

As is so often the case with rapid financial sector liberalization, the government's capacity to regulate and supervise these developments did not keep pace. At the same time, the banking system was unable to allocate greatly increased flows on an efficient basis. Galbis (1993) found that financial liberalization might increase banking sector fragility because of increased opportunities for excessive risk taking and fraud. Many basic prudential regulations (such as those against lending to affiliated companies) were regularly broken, with little penalty. Some banks were undercapitalized, bank loans quality began to deteriorate, though not catastrophically, and NPLs eventually were rising gradually in the banking and financial sector (Sachs and Radelet 1999).

2.3.13 Local Economic Conditions

One possible explanation for the wide variation in loan losses is that banks with heavier loan losses are often located in areas with worse economic conditions. The region covered by the study conducted by Keeton and Morris (1987) in the United States has a highly diverse economy. Although many rural markets depend heavily on agriculture, some of the major cities have more diversified economies based on services and manufacturing. Loan losses have naturally tended to be higher in areas dependent on agriculture and energy than in areas dependent on other industries that have performed better. In addition, some areas have experienced strictly local

shocks, such as bad weather or the closing of a major plant, adding to the variation in loan loss rate across markets.

2.3.14 Weaknesses in Prudential Regulation and Supervision

Deficiencies in prudential regulation and supervision exacerbate the NPL problem. These deficiencies included lax prudential rules, or application of rules, particularly on connected lending, loan concentration and cross guarantees. A significant problem was the lack of strict loan classification criteria and weak rules on loan provisioning and interest suspension. In addition, financial sector regulators and supervisors in some of the crisis countries, have been susceptible to political and industry pressure. Supervisors frequently waived prescribed limits, a significant problem in South Korea and Thailand. In addition, in South Korea, commercial, development, and merchant banks were regulated and supervised by different agencies, making uniform supervision difficult.

- **Close Links between Governments and Financial Institutions.**

Weaknesses in supervision were compounded by the close links between governments and financial institutions. The government's interference in credit allocation in Indonesia and South Korea circumvented the need for thorough risk assessment by the banks, made the governments co-responsible for the quality of bank's assets, and provided an implicit government guarantee on banks' liabilities. Furthermore, given the governments' historic role of promoting investment through policy loans and guarantees to corporations, supervisors were constrained in their

ability to penalize banks for making bad loans. The NPLs therefore started to mount (Lindgren, Balino, Enoch, Gulde, Quintyn and Teo 1999: 14-15).

Prudential regulations and, especially supervision were not strengthened when the banks were granted greater independence in lending decisions and when domestic financial markets and the capital account were liberalized.

The rules for loan classification, provisioning, and accounting were inadequate and were applied inconsistently. Furthermore, prudential limits on loan concentrations were absent. For this reason, banks started to build up excessive exposure to particular sectors. There was also excessive lending based on collaterals rather than proper credit assessment. When the economy turned bad, banks faced rapid decline in the value of their collaterals and thus credit began to go bad in increasing numbers.

- **Lack of Transparency**

The failure of governments to ensure the prudential regulation and transparency of private-sector financial transactions, along with their restriction of foreign institutional competition in heavily protected domestic financial markets, also increased the likelihood of overleverage, bad loans and investments, and reliance on political connections rather than well-informed risk assessments to ensure the security of those loans and investments. Lack of transparency additionally caused

investors to err on the side of excessive pessimism and risk aversion, pulling out their capital at the first sign of trouble later (Lim 1998).

- **Weaknesses in Disclosure Practices**

The NPL problem is partly caused by the weaknesses in disclosure practices. The shortcomings in disclosure practices lead to the mounting of NPLs and undercut market discipline. Disclosure of loan classification, loan-loss provisioning and accrual of interest was weak. Although most banks (for example, banks in the Asian Crisis countries) disclosed the accounting policy for loan-loss provisioning, they did not disclose the balance sheet, the aggregate amount of loans and advances for which they had stopped accruing interest (Lindgren, Balino, Enoch, Gulde, Quintyn and Teo 1999).

- **Weaknesses in Legal and Regulatory Framework**

Despite substantial progress, the legal and regulatory framework remains weak in most economies, especially in transition economies in Eastern European countries. The difficulties of loan recovery are compounded by ambiguous property and collateral rights, slow bankruptcy proceedings, and under-developed out-of-court resolution methods. In the absence of a strong market-based legal tradition, independent courts, experienced judges and lawyers, and systems of commercial valuation, bankruptcy and liquidation proceedings are laborious. Where they do occur with regularity – Hungary and Poland – the heavy backlog of cases slows contract enforcement and loan recovery (Borish, Long and Noel 1995: 25). In

general, a borrower's operational, financial, and investment activities are not transparent to creditors; substantial uncertainty exists with respect to the substance and practical application of contract law, insolvency law, and corporate governance rules; and creditors perceive that they lack sufficient information and control over the process used to enforce obligations and collect debts (World Bank 1999).

2.4 CONSEQUENCES OF NONPERFORMING LOANS

At every bank, the management expects and prepares for NPLs. In any economic climate, some businesses and individuals to which a bank lends will be unable to repay their loans in full. Bank management attempts to minimize loan losses through its underwriting standards and periodic loan review. However, the mounting of NPLs has caused the reduction in banks' profitability. More severely, it has jeopardized the bank solvency by depleting banks' capital. The rising of NPLs has been at the core of most system banking crises.

(a) At Level of Individual Bank

2.4.1 Reduced Banks' Profitability

Clair and Gunther (1987) undertook a study on problem loans and bank profitability for the Eleventh District Banks in the United States in 1986. They found that the rising NPLs affected the profitability at District banks through other avenues besides the increased provision for loan losses. First, many NPLs were not accruing interest. Second, the rise in problem loans increased awareness in the financial markets concerning the risk exposure of these banks. Consequently, it is likely that the risk

premiums paid to acquire funds also increased. These two factors, along with other effects of the weak regional economy, reduced the net interest margin and profitability of banks.

The study has shown that the decline in return on assets at the District banks can be attributed to the rise in problem loans on both the increased provision for loan losses and the reduction in the net interest margin.

This research indicated that problem loans were the predominant factor in the large reduction in the profitability of Eleventh District banks in 1986. The dramatic and largely unanticipated rise in loan difficulties led to a sharp increase in the provision for loan losses, thereby markedly reducing net income at the District banks. Moreover, the increase in loan difficulties reduced the net interest margin through a variety of subtle channels, which hurt the District banks' profitability still further.

2.4.2 Lower Bank Capital And Banking System Distress

Syron (1991) reported that the drop in real estate prices in New England caused substantial increase in nonperforming assets, much of it in real estate loans. As nonperforming assets grew, banks were forced to increase their loan loss reserves, resulting in lower capital.

Dzuibek and Pazarbasioglu (1997) in their study on systemic bank restructuring, pointed out that banks with large holdings of troubled assets have high provisioning

costs, and must provide for losses on a significant portion of those assets. This reduces net earnings and, ultimately, capital.

Another possible interpretation is that given by Yeats (1991). He explained how losses from NPLs would lower the bank capital and even jeopardize bank solvency. He pointed out that the general loan loss reserve account, called allowance for loan and lease losses, is built up over time by retaining income. Additions to the loan loss reserves account, referred to as provisions for loan and lease losses, are non-interest expenses that reduce current period net income.

All loans are priced to cover all the anticipated costs of making loans. These anticipated expenses consist of interest costs of funding the loan and a share of overhead, which includes loan collection costs and provisions for loan losses. If NPLs are greater than anticipated, the bank must make higher-than-expected provisions for loan losses that cut into net income. Because these loans are not generating revenues, making the necessary additions to the loan loss reserves account becomes difficult. These loans also generate other expenses, such as monitoring costs, not needed with performing loans.

Continue losses from NPLs will jeopardize the solvency and viability of the bank. The reserve account that was counted toward the bank's primary capital requirement becomes depleted.

(b) At Level of Banking System.

2.4.3 Contagion, Deposit Run, and Banking System Distress

The NPL problem may cause contagion to occur, which may be a contributory factor determining bank distress and eventually bank failures in the banking system. Contagion occurs when problems at some banks in the system adversely affect other financially sound banks. One result of contagion could be generalized deposit runs on the banking system, and another could be a weakening of the banking system because of banks' "herding behavior" (Gonzalez-Hermosillo 1999).

If a depositor believes that other depositors at the bank plan to withdraw their funds, she may start worrying about her own money. She knows that if withdrawals are large enough, the bank could fail. In this case, an amount less than the initial deposit will be left for her if she waits too long, so she may decide to withdraw her deposits immediately. If all depositors share her beliefs, a run could start and that bank could fail regardless of the condition of its assets. A run on one bank may lead depositors at other banks to form similar beliefs about the behavior of other depositors and to start a run on their banks. In this case, failures could spread among both solvent and insolvent banks because bank runs on a large number of banks could lead depositors to lose confidence in the banking system as a whole.

Alternatively, depositors might have some information about the quality of their bank's assets. If the assets turn sour (for example during a period of unfavorable economic conditions) these depositors might start a run on the bank. Subsequently,

depositors at other banks may start runs if they think their banks have assets similar to those of the first bank. Thus, panic can be triggered when depositors, revise their beliefs about the quality of their banks assets. The probability of banking sector distress may be increased due to this factor (Temzelides 1997: 5).

During a run, a bank experiences much heavier demand for deposit withdrawals than it can easily meet. If the run is severe enough, the bank will not be able to meet the demands of all depositors trying to withdraw money and consequently, will have to suspend payments. During a panic, runs occur on a large number of banks. Panic may occur because of regional or economy-wide problems, such as a real estate bust, during which the portfolios of many banks lose value. If depositors have not completely lost confidence in the banking system, they will transfer their deposits from failing banks to solvent banks. But panics may also occur because runs on a few banks cause depositors at other banks to lose confidence, and therefore, to withdraw "indiscriminately" from both solvent and insolvent banks, are said to involve contagion (Temzelidez 1997: 3). The immediate effect is the banking sector distress, and bank failure.

2.4.4 Banking Crises

Hardy (1998) has conducted a survey on banking crises. Rising NPLs may be one of the causes that result in banking crises. To deal with such crises, the governments of several Latin American countries in the early 1980s, including Chile and Mexico, felt compelled to make up for losses in the banking system—for instance, by buying

substandard loans from the banks for more than their true worth—to preserve it's solvency. During the 1980s and 1990s, many African countries also had to restructure and recapitalize their banking systems, which in the past had suffered large losses on loans to parastatal companies (companies at least 50 percent owned by the state) and on crop loans. In the late 1980s, the performance of banks in certain advanced industrial countries, particularly in the Nordic countries, deteriorated to the point where governments had to support some of the largest banks to preserve financial stability. In almost all the transition countries—those that transformed their economies from a command system to a market-based system—major banks incurred large losses as a result of high and fluctuating inflation and the loss of traditional enterprise clients. Current events in East Asia have reminded the world once again of how rapidly and forcefully banking crises can erupt and how difficult it is to anticipate the full ramifications of these dramatic events. In all cases, banking crises resulted, at a minimum, in large losses of wealth and disruptions in the supply of credit for investment and commerce.

Demirguc-Kunt and Detragiache (1997) have conducted a study on the factors associated with the emergence of systemic banking crises in a large sample of developed and developing countries in 1980-1984. They found that in the 1980s and early 1990s, a number of developed countries, developing countries and economies in transition experienced severe banking crises, partly due to high rates of NPLs in the banking system. Such proliferation of large scale banking sector problems has raised widespread concern, as banking crises disrupt the flow of credit to households

and enterprises, reducing investment and consumption and possibly forcing viable firms into bankruptcy. Banking crises may also jeopardize the functioning of the payments system and, by undermining confidence in domestic financial institutions, they may cause a decline in domestic savings and/or a large scale capital outflow. Finally, systemic crisis may force sound banks to close their doors.

2.4.5 Systemic Banking Failure and Corporate Insolvency

Throughout the region, the financial and corporate sectors are trapped in debt resulting from the financial crisis that erupted in Asian beginning in mid-1997. Except for China, highly leveraged corporations are caught between falling revenues and rising cost for interest service and imported materials. Recession forces corporations to delay or default on bank payments, and, as the amount of NPLs rises, banks' cash flows are squeezed. This forces the banks to contract new lending to illiquid corporations and call in good loans to raise cash, further deepening the recession. In addition, tight monetary and credit policies have induced precipitous declines in the volume of real credit, impeding corporate revival. In any case, credit is scarce and many borrowers hover on the brink of default, so banks are unwilling to lend to all but the most reliable borrowers. Getting accurate information on firms and financial entities is difficult under conditions of exchange rate instability and frequent variations in relative prices; this complicates the process of differentiating the good borrowers from the bad, and underscores the importance of exchange rate and price predictability.

In Thailand, South Korea, and Indonesia, the abrupt change in economic conditions has produced a systemic crisis. Rising debts, plus capital losses associated with exchange rate depreciations, have pushed a large segment of the countries' banks and corporations into insolvency simultaneously. In Thailand, one out of four listed firms are estimated to have balance sheet losses greater than equity. When this is combined with falling demand, NPLs are estimated to range from 20% to 35% of total loan portfolios. In Indonesia, two out of three listed large firms are bankrupt according to this criterion, and NPLs may reach as high as 50%. In South Korea, two out of five corporations for the corporations have exchange rate and interest rate losses greater then equity and NPLs also range from 20% to 35%. Balance sheets and cash flows positions for the corporations are deteriorating to such an extent that, unless restructuring and debt workouts are carried out upfront, even a relaxation of monetary and fiscal policies is unlikely to produce the desired impact on corporations' finance and operations (World Bank 1998: 113).