The present chapter reviews the studies conducted on the various financial institutions to check the credit health worthiness of the customers and for the selection of a bank to grant a loan.

Credit analysis refers to the bank’s effort to investigate factors that may lead to a default in the repayment of a loan. The ultimate objective of credit analysis is to determine the ability and willingness of a borrower to repay a loan. Shamsudin, Shamsher and Annuar (1988) explained that credit analysis is the most important step in the bank lending process, because it is the basis on which lending decisions are made.

Altman (1968) was the first to use a statistical model to predict probability of a borrower to default aimed at identifying the borrower credit risk more objectively. Following this, many statistical credit scoring models have been developed, such as logistic regression, neural networks, smoothing nonparametric and expert systems and have been widely used in assessing credit risk (Hand and Hanley, 1997). Statistical techniques, such as discriminant analysis, regression analysis, probit analysis and logistic regression used in building the scoring models have also been examined by Orgler, (1971); Boyes, et al., (1989); Steenackers and Goovaerts, (19890; Greene, (1998); Banasik et al., (2001) and Sarlija et al., (2004). There have also been case studies of building credit scoring models by Leonard, (1995); Banasik et al., (2001); Lee et al., (2002) and Lee and Chen, (2005). Many of these studies focused on existing consumer loans rather than new loan applications (Orgler, 1971; Kim and Sohn, 2004).

Studies relied on the use of only two groups of customer credit, either “good” or “bad” as to credit scoring models and are still one of the most important assortments in credit scoring applications (Orgler, 1971; Boyes et al., 1989; Banasik et al., 2001; Lee et al., 2002 and Kim and Sohn, 2004). On the other hand, the use of three groups of consumer credit became one of the approaches for classification in credit scoring models very recently. Authors have used “good” or “bad” or “refused” as the three categories of consumers while analyzing the mandatory data provided by the consumers seeking loan (Steenackers and Goovaerts, 1989). Still others have used “good” or “poor” or “bad” as the three categories of consumers seeking loans.
The Probit Analysis has been most prominently used in building credit scoring models beside other statistical techniques in the studies reported after 2001 ((Guillen and Artis, 1992; Banasik et al., 2003 and Greene, 1998). Most of the credit health check techniques appear to be though regulatory, but suggestive circumvent upon what has been fed or presented to the model or the software checking the credit health. It is important for new users to apply the most appropriate technique(s) for the array of methods available, bearing in mind comparisons between different methods (Guillen and Artis, 1992; Desai et al., 1996; Hand and Henley, 1997; Baesens et al., 2003; Chen and Huang, 2003 and Ong et al., 2005) and the emphasis on a dichotomous variable of “good” and “bad” (Guillen and Artis, 1992; Desai et al., 1996; Hand and Henley, 1997; Banasik et al., 2003; Chen and Huang, 2003 and Yang et al., 2004). Differences in the outcomes of models even fed the same data are very likely because of the differences in subjective parameters.

There are several statistical methods used to estimate credit scoring models in assessing borrowers’ credits, such as discriminant analysis (Dunn and Frey, 1976), linear probability models (Turvey, 1991), probit models (Lubbuttow et al., 1984) and logit models (Mortensen et al., 1988). The last three methods estimate the default rate based on the historical data on loan performances and the borrowers’ characteristics. The idea of linear probability is to look up for a linear combination of explanatory variables. It assumes that there is a linear relationship between the default rate and the factors. The probit model assumes the probability of default follows the standard cumulative normal distribution function. The probability of default is logistically distributed in the logit model and discriminant analysis divides borrowers into high and low default-risk classes (Mester, 1997).

Credit scoring system is a computerized procedure generating a number of points (a score) according to a number of the borrowers’ relevant characteristics, such as income, profession, age, wealth, previous loans, etc. The total score is obtained by summing the individual borrower’s score. If the score is higher than a lender’s “cut-off-level”, credit will be granted, otherwise the credit will be refused (Steenackers and Goovaerts, 1989).

Bell (1990) demonstrated that incomplete information or imperfect contract enforcement generates the possibility of loan default and eventually problems of credit
rationing. The result is loan supply and implicit credit demand functions, both of which are simultaneously determined. Accordingly, where default risk exists, with an upward sloping supply curve, lenders offer borrowers only a choice of points on the supply curve, and borrowers are restricted to these points. It is impossible to identify the loan demand schedule using the observed loan amounts since these only reflect the existing supply. The credit demand function can only be interpreted from the borrower’s participation decision, i.e., the decision to borrow or not, and from which sector to borrow. Such a decision will depend on, among other things, the borrower’s economic endowment and opportunities.

Desmond (1991) gave the reason for small business loan rejection as no track record of business, too risky, performance factor and lack of personal investment. Past experience was considered as the most important factor in influencing the bankers’ decisions in accepting or rejecting the consumer’s loan propositions (Rosli & Ghazali, 2007). Trading experience was ranked as the most importance factor by the survey done by Deakins & Hussain (1994) and Fletcher (1995).

In the universe of consumer credit, pledge of future payment involves the idea of risk. As the future cannot be fully predicted, all consumer credit involves risk, because assurance of payment does not exist (LEWIS, 1992). Analysis of credit is charged with the task of estimating the risk involved in the concession or not of credit. The maximum risk that the institution may accept relies on the policy adopted by the company. Risk presented by the applicant is of major significance for the process of credit concession, and various queries must be considered in its evaluation.

Evaluation of risk is the main issue for concession of credit. Evaluation of risk of a potential client can be carried out in two ways:

- By judgment, a more subjective way involving a more qualitative analysis;
- By classifying the taker by means of evaluation models, involving a more quantitative analysis.

However, credit scoring has been vital in allowing the phenomenal growth in consumer credit over the last four decades. Without an accurate and automatically operated risk
assessment tool, lenders of consumer credit could not have expanded their loan books in the way they have (Lewis, 1992; Bailey, 2001; Mays, 2001; Thomas et al., 2002; Bluhm et al., 2003 and Siddiqi, 2006). Possibly the earliest use of applying multiple discriminant analysis to credit scoring is the work by Durand (1941), who examined car loan applications. A well-known application in corporate bankruptcy prediction is one by Altman (1968), who developed the first operational scoring model based on five financial ratios, taken from eight variables from corporate financial statements. He produced a Z-Score, which is a linear combination of the financial ratios. The evaluation of new consumer loans is one of the most important applications of credit scoring models and it has attracted some attention in the last few decades (Steenackers and Goovaerts, 1989; and Sarlija et al., 2004).

Schrader (1992) adopted a scoring system that reduces the need for judgmental assessment in making credit decisions. However as a practical matter, some risk assessment decisions in the lending environment will be contrary to the credit score recommendation. For the application credit score, these overrides of the credit score can be classified as high-side and low-side overrides (Sangha, 1998).

Jensen (1992) found that using credit scoring, approximately 8 percent of the applications would be approved when they were actually bad loans and 18 percent of the applications would be rejected when they were good loans. This is similar to the Type I and II errors in the hypotheses development. In any credit market, borrowers have the option to default; defaulters are not exogenously excluded from future borrowing; there is free entry of lenders and borrowers; and lenders cannot collude to punish defaulters. Limited credit or credit at higher interest rates various default arises from the lender’s response to limited information about the borrower’s behaviour and earnings realizations. The lender learns from an individual’s borrowing and repayment behaviour about his/her type and encapsulates his/her reputation for not defaulting in a credit score (Chatterjee, Corbae and Ríos-Rull, 2008).

Time with employer measures the number of years that the borrower has been working for the current employer. It reflects the satisfaction of the borrower with the current job. The higher the borrowers’ job satisfactions, the more stable their employment will be and the higher their ability to repay their loans (Cook et al., 1992). The length of time
with employer may discriminate against women, since women’s length of employment reduces due to pregnancy and childbearing (Capon, 1982).

Demand for credit is a derived demand. Households desire credit in order to make certain production and consumption expenditure as well as investments (Feder et al., 1993). The costs and returns of credit must be considered to determine the optimal level of credit utilization (Feder et al., 1993).

Lenders need to set the loan rate at the reasonable level consistent with the competition in the financial marketplace. Lenders want to charge a high enough rate to ensure that each loan will be profitable and compensate for the risks the lenders are exposed to. However, the rate of the loan should be low enough, in such a way that the borrowers could not be driven away to another lender. Therefore, in the loan market lenders are price takers, not price setters (Rose, 1993).

Credit scoring methods produce more accurate classifications than subjective judgmental assessments by human experts. Rosenberg and Gleit (1994) and Chandler and Coffman (1979) discussed the credit scoring method advantages over the judgmental assessment. For example, credit scoring can be increased efficiency by leaving loan officer to concentrate only on ambiguous cases, and it also allowed the lenders to review the creditworthiness of the borrowers periodically (Glassman and Wilkins, 1997). Thus, credit scoring models have become a preferable technique in credit risk appraisal.

Borrowers’ credit history and other characteristics regarding repayment ability that are generally provided by borrower are electronically analyzed. Credit models would predict the default risk of any loan granted based on previous experience with borrowers of similar loan profiles. A well-designed model should give high scores to borrowers whose loans would perform well and low scores to borrowers whose loans would not perform well. To develop a good credit scoring model, it is necessary to review the borrowers’ credit worthiness periodically, as changes in economic condition could affect loan performances. In general, there is no best credit scoring models. It is possible some bad borrowers may get a high score and receive the loans, and vice versa (McAllister and Mingo, 1994).
Banks’ interest rate affects the potential borrowers’ lending decision and the actions of borrowers. The interest rate charged by the bank could determine not only by the demand for capital but also the riskiness of the borrowers. The higher interest rate either presents riskier applicants or influences borrowers to choose other lenders. Lenders may optimally choose to ration the quantity of loans they have granted rather than raise the rate to clear the market (Petersen and Rajan, 1994).

Binks and Ennew (1996) mentioned the use of secured lending by banks to control their exposure to risk. The findings by Chen (2006) suggested that the riskier borrowers pledged more collateral. However, it is costly to maintain and sell collateral, and foreclosures do not build long-term relationship with the customers (Macdonald & Koch, 2006). The other Ways of further minimizing risks include securing the borrower’s guarantee, using government guaranteed loan programs, and requiring conservative loan-to-value ratios (McGovern, 1993). The research finding by Berry et al. (1993) indicated that the bankers were emphasizing highly on the profitability, financial stability and liquidity in order to determine the financial soundness of the company. Financial result must have been weighed in the context of the borrower’s strategy, inherent value chain, past results, management decision-making record, current economic trends and cycle and industry life cycle stage, among other things, in order for the results to be truly meaningful (Scott, 2005).

Rajagopal (1996) made an attempt to overview the bank’s risk management and suggests a model for pricing the products based on credit risk assessment of the borrowers. He concluded that good risk management is good banking, which ultimately leads to profitable survival of the institution. A proper approach to risk identification, measurement and control will safeguard the interests of banking institution in long run.

There are two main techniques used to evaluate a borrower’s creditworthiness (Crook, 1996): the loan officer subjective assessment (judgmental technique) and the credit scoring technique. Creditworthiness is judged based on the characteristics of an individual that makes him or her qualify for a loan; and one who is not creditworthy will be unqualified for the loan (Lewis, 1992). The subjective assessment of a borrower’s creditworthiness is based on 6 C’s- Character, Capacity, Cash, Collateral, Conditions and Control (Rose, 1993).
Credit scoring models can assist banks to make lending decisions. Credit scoring can supplement or even replace the traditional subjective assessment of pertinent information in applicant’s report, the statistically derived measure of the credit risk associated with a given credit history allow lenders to better and more quickly assess the strengths and weaknesses of applications (Avery et al., 1996).

Credit scoring is broadly used in consumer lending, especially in credit cards, and has become more commonly used in mortgage lending. The advanced computer technology increased data accessibility for business loans and this have made such scoring applicable in complex business loans. Thus, more and more banks are using credit scoring to evaluate loan applications, as credit scoring tends to standardize loans and make applicators’ default risk more predictable (Mester, 1997). As banking markets in developing countries are maturing, banks need to face competitions from both domestic and foreign banks. The credit scoring models could give banks the substantial growth of retail credit and increased regulatory attention to risk management (Dihn and Kleimeier, 2007).

The overall idea of credit scoring model is quite straightforward. Based on the statistical probabilities, the combinations of borrowers’ characteristics differentiating “good” from “bad” generate a score (or probability) serve as an estimate of the risk level of each new loan when then lenders decide whether to make the loans or not (Crook, 1996). Crook (1996) argued that the aim of credit scoring is to predict risk, not to explain it. Thus, it is not necessary that the predictive model also explains why some borrowers default on the loan repayment and others do not.

Glassman and Wilkins (1997), Crook (1996), and Lewis (1992) argued judgmental assessment of credit is inefficient, unexplainable, inconsistent and non-uniform. Traditional methods of deciding loan granting base on experience of previous decisions and use human judgment of the risk default. However, economic pressures resulting from increased demand for credit allied with greater commercial competition and the emergence of new computer technology; led to the sophisticated models to aid the credit granting decision (Hand and Henley, 1997).
Nowadays, more and more credit decisions are being made using automated systems. Banks recognize the benefit of implementing scoring systems to lower costs associated with traditional underwriting, decrease credit losses, and provide consistent credit decisions across groups of borrowers (Mays, 1998). One of the Credit scoring systems is the pointing system in which a borrower collects points for a number of predetermined variables. If the borrower scores exceed the cut-off point, the loan will be approved by the bank. Sometimes even though the credit scores exceed the cut-off point, it is still subject to further investigation. The other bankers also reveal that some of the decision making is centralized at Head office or the branch manager has little or no approving power in approving the credit proposition. Their role is mostly at the recommendation level and the approval is lie with the credit controller and loan committee which are the head office staff. Bank will always looking for the credit scoring system that are demonstrably accurate and therefore, valid in their application.

Froot and Stein (1998) found that credit risk management through active loan purchase and sales activity affects banks’ investments in risky loans. Banks that purchase and sell loans hold more risky loans (Credit Risk and Loss loans and commercial real estate loans) as a percentage of the balance sheet than other banks. Again, these results are especially striking because banks that manage their credit risk (by buying and selling loans) hold more risky loans than banks that merely sell loans (but don’t buy them) or banks that merely buy loans (but don’t sell them).

Treacy and Carey (1998) examined the credit risk rating mechanism at US Banks. The paper highlighted the architecture of Bank Internal Rating System and Operating Design of rating system and made a comparison of bank system relative to the rating agency system. They concluded that banks internal rating system helps in managing credit risk, profitability analysis and product pricing.

Duffee and Zhou (1999) model the effects on banks due to the introduction of a market for credit derivatives; particularly, credit-default swaps. Their paper examined that a bank can use swaps to temporarily transfer credit risks of their loans to others, reducing the likelihood that defaulting loans trigger the bank’s financial distress. They concluded that the introduction of a credit derivatives market is not desirable because it can cause other markets for loan risk-sharing to break down.
Santos (2000) understood consumer credit as a form of trade where a person obtains money, goods or services and vouches to pay for this in the future, adding a premium (interest) to the original value. Currently, consumer credit is a large industry operating worldwide. Major retailers spur their sales by supplying credit. Automobile companies, banks and other segments utilize consumer credit lines as an additional alternative to make profit. On the other hand, consumer credit injects resources into the economy, permitting production and economic expansion of a country, thereby bringing development to the nation (Lewis, 1992).

According to Caouette et al. (2000), “…if credit may be defined as the expectation of receiving a sum of money in a given period, then Risk of Credit is a chance that this expectation is not fulfilled…” The activity of credit concession is a basic function of banks, therefore risk of credit takes a relevant role in the composition of an institution’s risks and may be found in the operations where there is a transfer of money to the clients as well as in those where there is only a possibility of usage, the pre-conceded limits. Primary types of a bank credit operation are: loans, financing, discount of payables, advancement to depositors, advancement of exchange, leasing operations, surety bonds and warranties etc. In these operations risk may take on different forms; to be conceptually familiar with them helps to orient management and mitigation.

Bard et al. (2000) argued that there are several financial factors that may affect lender’s decision on the amount of loan lend, such as, financial market structure and borrower, loan and lender characteristics. The borrower’s characteristics indicated the credit risk, thus, it affect the loan amount. Bank attributes, such as lending policy, lending limits, reserve requirements, and available of funds were supply-side factors that could affect the availability of credit.

The residential variable measures whether borrowers own their home, rent, or live with their parents. This could indicate the borrowers’ financial wealth in the case of home ownership. Residential status also indicates financial pressure on borrowers’ income, for example, rental cost. Crook et al. (1992) found that borrowers living with their parents are less likely to default.
Time addresses the number of years that the borrowers have been living at their current address. According to Crook et al.’s (1992) study, the default risk drops with an increase in time at present address; it might be a proxy for the borrowers’ maturity, stability, or risky aversion. Changing address might be a signal that a borrower’s financial wealth is high or improving rapidly.

Marital status affects the borrower’s level of responsibility, reliability, or maturity. The probability of default is higher for married than single borrowers. Dinh and Kleimeier (2007) discovered that the marital status is typically related to the number of dependants which in turn reflects financial pressure on the borrower and borrower’s ability to repay a loan.

Collateral is a form of guarantee to support the loan. Borrowers’ collateral can be a signal of default risk, such as, if the loans that the house serves as collateral, the probability of default is very low. This is because the borrowers are risk adverse and fear of losing their house. Collateral reduces the bank’s risk when it makes a loan (Gup and Kolari, 2005). The higher the collateral value the higher the incentive for the borrowers to repay the loan since they do not want to loose their collateral. The collateral value could also be a proxy for the borrowers’ financial wealth since it is significantly positive correlated with the borrowers’ income (Dinh and Kleimeier, 2007).

On the financial market, risk of credit is the oldest form of risk (Figueiredo, 2001). It is the upshot of a financial transaction, contracted between the supplier of funds (giver of credit) and the user (taker of credit). Prior to any sophistication resulting from financial engineering, the mere act of lending a sum to someone entails the probability of it not being repaid, the uncertainty regarding return. This is, in essence, the risk of credit which may be defined as the risk of a counterpart, in an agreement of credit concession, not to meet his/her obligation.

Ferguson (2001) analyzed the models and judgments related to credit risk management. The author concluded that proper risk modeling provides a formal systematic and disciplined way for firms to measure changes in the riskiness of their portfolio and help them in designing proper strategic framework for managing changes in their risk.
There are two major problems in credit analysis: the assessment of all important factors about an applicant simultaneously and the evaluation of all applicants objectively (Sinkey, 2002; Plata and Nartea, 1998). The factors used to assess loan applicants include monthly income, outstanding debt, financial assets, whether the applicant has defaulted or is over delinquent on a previous loan (Schreiner, 2000) and the loan applicant’s subjective factors, such as age, gender, education, marital status, income, and other personal characteristics that will affect the applicant’s loan performance Boyes et al. (1989). The objectives of loan assessment are to predict the probability of loan default and mitigate the default risk (Jacobson and Roszbach, 2003).

The objective of credit scoring models is to assign loan customers to either good credit or bad credit (Lee et al., 2002). Therefore, scoring problems are related to classification analysis (Anderson, 2003; Hand, 1981) and Lee et al. (2002). Classification models for credit scoring are used to categorize new applicants as either accepted or rejected with respect to their characteristics, such as, marital status, age, and income (Chen and Huang, 2003). At the same time, this suits the Egyptian environment, with perhaps the addition of other variables, such as corporate guarantee, monthly salary and education. The credit scoring model is one of the most successful applications of research modeling in finance and banking, and the number of scoring analysts in the bank is constantly increasing. Yet because credit scoring does not have the same luster as the pricing of exotic financial derivatives or portfolio analysis, the literature on the subject is very limited.

Lee and Marlowe (2003) used both qualitative and quantitative approaches to clarify how consumers choose a financial institution for their checking account. They found that most consumers value convenience as one of the most important decision-making criteria.

Kamath et al. (2003) study on Indian Banking Sector : Challenges and Opportunities revealed that to cope with the pressures of growing competition, commercial banks have adopted several initiatives to strengthen their business practices including, among others, greater product sophistication, increased customer orientation, improved risk-management (particularly credit risk management techniques), updated management information systems, greater focus on e-finance channels and diversification into newer
business areas. The competition was especially tough for the public sector banks as the newly established private sector and foreign banks had sharpened their competitive edge. However, they have responded proactively to the challenges posed by the private sector banks and there has been a significant improvement in their performance in terms of profitability and operational efficiency.

Ferenc KISS (2003) evaluated that the success of credit/lending decisions was basically influenced by two factors: the quality of basic data (completeness, accuracy, credibility) and the quality of the decision making model (for individual deals, the decision making process). However, the former is a rather technical criterion, the latter is far more complex; still, to a great extent it depends on the knowledge and experience of the business experts shaping and implementing the decision making process. This work intended to examine the relationship between widely used credit scoring models and the expansion and/or preservation of the knowledge wealth of the organization.

Bagchi (2003) examined the credit risk management in banks. He examined risk identification, risk measurement, risk monitoring, risk control and risk audit as basic considerations for credit risk management. The author concluded that proper credit risk architecture, policies and framework of credit risk management, credit rating system, monitoring and control contributes in success of credit risk management system.

Muninarayanappa and Nirmala (2004) outlined the concept of credit risk management in banks. They highlighted the objectives and factors that determine the direction of bank’s policies on credit risk management. The challenges related to internal and external factors in credit risk management are also highlighted. They concluded that success of credit risk management require maintenance of proper credit risk environment, credit strategy and policies. Thus the ultimate aim should be to protect and improve the loan quality.

Chai Tze Seng (2005) in his study “how Bank Managers assess consumer loans in Malaysia” suggested that the financial services industry is rapidly evolving as banks engage in new activities, it giving rise to refinements & alternative models to bank credit analysis. The credit analysis has becoming even more complicated with the introduction of Basel Capital Accord II in Malaysia (Lee, 2004).
Credit policy of the borrower was seen by the bank manager as an important feature because it spells the success or failure of a company’s credit and collection policies (William, Haka, Bettne, 2005). The projected cash flow of the borrower is important in order for the banker to assess whether the borrower is capable to pay interest, tax and dividends and to either repay the loan principal or keep its overdraft within a prescribed limit (Coyle, 2000).

Louberge and Schlesinger (2005) aimed to propose a new method for credit risk allocation among economic agents. Their paper considered a pool of bank loans subject to credit risk and develops a method for decomposing the credit risk into idiosyncratic and systematic components. The paper shows how financial contracts might be redesigned to allow for banks to manage the idiosyncratic component for their own account, while allowing systematic component to be retained, passed off to capital market or shared with borrower.

Bandyopadhyay (2006) aims at developing an early warning signal model for predicting corporate default in emerging market economy like India. He also presented the method for directly estimating probability of default using financial and non-financial variable. For predicting corporate bond default multiple discriminant analysis is used and logistic regressions model is employed for estimating Probability of Default (PD). The author concluded that by using ‘Z’ score model, banks and investors in emerging markets like India can get early warning signals about the firm’s solvency status and reassess the magnitude of default premium they require on low grade securities. The PD estimate from logistic analysis would help banks to estimate credit risk capital and set corporate pricing on a risk adjusted return basis. This model has high classification power of sample and high prediction power in terms of its ability to detect bad firm in sample.

In Malaysia, most of the commercial banks had adopted the credit scoring system to assess the creditworthiness of the borrowers. Credit scoring was based on real date and statistics and it was more reliable than subjective or judgmental methods, as it treated all applicants objectively (Isaac, 2006).
According to Pruis (2006) because of the inaccuracy of the financial reporting from a consumer and yet we cannot abandon all the factors such as liquidity, leverage, profitability, payment history and longevity that are typically considered when we perform commercial analysis. Financial ratios are valuable tools for revealing the chances of obtaining capital by the borrowers, what type of capital to pursue and how to approach lenders, creditors and investors (Barren, 1992). Credit Payment performance and late payment is a warning sign that a business is in trouble (Lloyd, 2006).

Lim and Sohn (2007) argued that using existing models is quite troublesome to discriminate the creditability of borrowers with high default risks in the middle of the repayment term. However, with the cluster-based dynamic scoring models, the lender can identify the individual credibility at earlier stage of loan period without loosing its accuracy. In general, there is no overall best statistical technique/method used in building credit scoring models, for what is best depends on the details of the problem, the data structure, the characteristics used, the extent to which it is possible to segregate the classes by using those characteristics, and the objective of the classification (Hand and Henley, 1997).

Meder (2007) mentioned that if the owner’s personal credit is strong then the small business is likely strong as well. Many studies demonstrated the benefits of adopting a relationship approach when completing consumer loans. Results showed that the length of the relationship reduces the cost of the loan (Berger and Udell, 1995). Research findings by Rosli, Ghazali and Nora (2003) revealed that the bankers in Malaysia did not really understand the needs of their small business customers. Bankers are also required to assess management skills when making business lending decisions and particularly when making consumer lending decision (Berry, Faulkner, Huges and Jarvis, 1993). It is also necessary to identify differences in management depending upon the stage of development of the small business and the specific skills required to manage at each stage of the development. Banker has also required understanding the organization life cycle (Daft, 2004) and also different aspects of the skills: Technical, Human and conceptual (Stoner, Freeman & Gilbert, 1995).
The major factors commonly used in credit scoring models include the borrowers’ income, age, gender, education, occupation, employer type, region, time at present address, residential status, marital status, home phone, collateral value, loan duration, time with bank, number of loans, and current account (Dinh and Kleimeier, 2007; Roszbach, 2004; Jacobson and Roszbach, 2003; Martinelli, 1997; Crook, Hamilton, and Thomas, 1992; Boyes, Hoffman and Low, 1989; Capon, 1982). Income is a commonly used proxy of the borrower’s financial wealth and his/her ability to repay (Dinh and Kleimeier, 2007). There is a positive relationship between income and the borrowers’ default rate; higher income is associated with lower default risk (Jacobson and Roszbach, 2003). Occupation is a common variable used in credit scoring model and is highly correlated with the borrowers’ income level.

Education enhances the borrowers’ ability to repay. The better educated borrowers are deemed to have more stable and higher income employment and thus a lower default rate. The borrowers’ education level distinguished from post-graduate to non-high school graduate (Dinh and Kleimeier, 2007).

Nowadays, the credit scoring models are becoming one of the most successful techniques of modeling in finance and banking (Abdou et al., 2007). Credit score is based on statistical analysis of the borrowers’ credit files, using borrowers’ historical data and statistical techniques; it tries to isolate the effect of various characteristics of applicators on delinquencies and defaults (Frame et al., 2001; Mester, 1997; Glassman and Wilkins, 1997; Turvey and Brown, 1990). The techniques and practices of statistical credit scoring came to be applied by lenders, unevenly and in a relatively unplanned manner, to the problem of reducing losses due to the non-repayment of credit loans (Marron, 2007).

Marcellina Mvula Chijoriga (2008) in his research defined whether inclusion of risk assessment variables in the multiple discriminate analysis (MDA) model improved the banks ability in making correct customer classification, predict consumer’s performance and credit risk assessment. This study reviewed literature on the application of financial distress, credit scoring methods and the use of risk assessment variables in classification models. The study used a sample of 56 performing and non-performing assets (NPA) of a privatized bank in Tanzania. Financial ratios were used as
independent variables for building the MDA model with a variation of five MDA models. Different statistical tests for normality, equality of covariance, goodness of fit and multi-collinearity were performed. Using the estimation and validation samples, test results showed that the MDA base model had a higher level of predictability hence classifying correctly the performing and NPA with a correctness of 92.9 and 96.4 percent, respectively. Lagging the classification two years, the results showed that the model could predict correctly two years in advance. When MDA was used as a risk assessment model, it showed improved correct customer classification and credit risk assessment. Findings – The findings confirmed financial ratios as good classification and predictor variables of firm’s performance. If the bank had used the MDA for classifying and evaluating its customers, the probability of failure could have been known two years before actual failure, and the misclassification costs could have been calculated objectively. In this way, the bank could have reduced its non-performing loans and its credit risk exposure. It had also shown that other than financial variables, inclusion of stability measures improves management decision making and objective provisioning of bad debts. The recent financial crisis emphasizes the need for developing objective credit scoring methods and instituting prudent risk assessment culture to limit the extent and potential of failure.

In general, the interest rate charged on loan is comprised of four components (Ruthenberg and Landskroner, 2008): Firstly, the financial funding cost. Secondly, a premium reflecting market power exercised by the bank (example Inflation). Thirdly, the sensitivity of the cost of capital raised to changes in loans extended. Fourthly, a risk premium was to compensate the risk of default by borrower. The default risk premiums explain the interest rates differences across the identical loan. Stiglitz and Weiss (1981) argued that the rate charged to the borrower determines not only on the demand and capital but also the riskiness of the borrowers. A higher interest rate draws riskier applicants, and an increase in the interest rate increases the average riskiness of borrowers. Consequently, the differences in the interest rates indicted the financial risk of the borrowers.
In the following paragraphs the researcher cites the studies in context of bank selection criterion adopted by the consumers:

Many studies from the USA found that the main factors affecting customers’ bank selection were:

- distance from home or work (Kaufman, 1967; Riggall, 1980)
- bank service quality, including hours of operation, queuing size and fund safety (Laroche et al., 1986; Javalgi et al., 1989)
- friendliness of a bank’s personnel and influence from customers’ relatives (Mason and Mayer, 1974; Kazeh and Decker, 1993).

Meidan (1976) revealed that about 90% of the respondents banked at the branch nearest to their home place and place of work. Convenience, in terms of location, was also found to be the single most important factor for selecting a bank.

According to Boyd et al. (1994), the main factors that determine young (under 21 years old) customer bank selection is a sample of the head of the household were: a) bank’s reputation; b) location; c) hours of operation; d) interest of saving accounts; and e) the provision of convenient. Less important factors were the friendliness of bank employees and the modern nature of their facilities.

Kennington et al. (1996) found that in Poland, as in other countries, the most important factors influencing customer choice are reputation, price and services provided by banks.

Carolyn Kennington et al. (1996) pointed that important variables influencing customer choice were reputation, price and service. Josee Bloemer, Kode Ruyter and Pascal Peeters (1998) investigated how image, perceived service quality and satisfaction determine loyalty in retail banking. The key findings by Laroche, Rosenblatt, and Manning (1986) on diverse demographic segments included importance of location convenience, speed of service, competence and friendliness of bank employees.

Kennington et al. (1996) compared their findings with studies conducted in other countries in order to determine whether bankers need to follow new policies for
attracting customers, in the relatively new free market economy of Poland. They concluded that the most important selection factors for bank choice by Polish customers were: reputation, price (reduced interest rate on loans and high interest rate on savings) and services offered. In this respect, Polish bank customers do not differ from customers of the banking industry in other countries.

Gerrard and Cunningham (1997) evaluated the bank selection criteria in Islamic banking industry and found that there was general accord as between Muslims and non-Muslims on the rating of the various criteria. They also found five significant differences between Muslims and non-Muslims, the most relating to “being paid higher interest on savings which was far stronger with non-Muslims.

Burc Ülengin’s (1998) findings concluded that respondents prefer the extended loyalty programs, the continuous information flow from the bank, the off-site ATMs. The maximum five-minutes waiting time in the branches and a simple application for all the accounts the bank offers.

Findings of Huu Phuong Ta, Kar Yin Har (2000) indicated that undergraduates place high emphasis on the pricing and product dimensions of bank services. The results were as a matter of interest to bank managers because they had provided the information about the importance of the selection criteria as well as areas of strengths and weaknesses of the banks.

Ta and Har (2000) examined the predominant factor that had a bearing on undergraduates’ bank selection decisions by employing the Analytic Hierarchy Process. They indicated that undergraduates placed high emphasis on the pricing and product dimensions of bank services.

Thomas (2000) and Boyle et al. (1992) confirmed that older borrowers are more risk adverse, and therefore, the less likely to default. Thus, banks are more hesitant to lend to younger borrowers who are more risk averse. Gender is a fair discriminatory - base on the statistical default rates of men versus women. There are ample evidences that women default less frequently on loans because women are more risk adverse (Coval et al., 2000). Region means the area of the country that borrower lives. As people of
similar wealth tend to live in the same location, the geographic criterion can indicate a borrower’s level of financial wealth. Some suburb might attract richer residents and this could result increase in housing and property prices. This also affects the collateral value and probability of default.

Gerrard and Cunnigham (2001) set out to establish a ranking of the various dimensions which influences bank selection decisions of undergraduate students in Singapore and seek to determine how homogeneous undergraduates were in relation to their selection decision. They identified seven bank selection dimensions, the most important being undergraduates should feel secure, while the least important dimension was third party influences.

Ron Shevlin and Catherine Graeber (2001) explored various factors that influence a customer in choosing a particular bank. They pointed out that ATM (Automatic Teller Machine) being the primary reason for a customer choice for a bank and further branch visit and referral from friends and relatives were most prevalent sources of influence in Texas, USA. Findings of Mohammed Almossawi (2001) revealed that the chief factors in determining the college students’ bank selection were: bank’s reputation, availability of parking space near the bank, friendliness of bank personnel, and availability and location of automated teller machines (ATM).

Cicic et al. (2004) and Maddern et al. (2007) point out that banks’ personnel incompetence and lack of courtesy are major reasons customers leave their banks. Their studies revealed that customers regard highly knowledgeable and competent personnel coupled with friendly and courteous.

A study conducted by Erdener Kaynak, Talha D. Harcar (2005) revealed that banks were evaluated more positively by customers in the areas such as extra services offered by the bank, image of the bank, and convenience of the bank. James F. Devlin and Philip Gerrard (2004) presented an analysis of trends in the relative importance of choice criteria in respect of selecting a retail bank. The study pointed out that the influence of recommendations had increased significantly and is now the most important choice criterion. Other factors which had also increased the importance were the offering of incentives, having a wide product range and economic factors, such as
interest rate paid and fees and charges levied. Locational factors, such as choosing a bank close to home or work place, had decreased significantly the importance in motivating choice. Certain criteria had remained broadly constant through time, amongst them, those were bank's image and reputation and expectations about the level of service.

Dominic Celestine Fernandez (2008) conducted a survey and results indicated that no attribute obtained was an outright determinant of bank selection choices. This was due to the diverse needs of respondents as revealed by this survey. One of the important determinants such as location was of prime importance while selecting a bank, other factor that emphasized was better social interaction between banker and client. It also revealed the use of the consumer decision making model when selecting bank choices. As a whole, this study was able to achieve its objective in understanding and providing a snapshot of the important determinants in bank selection based on the feedback from survey respondents.

Khazeh and Decker (1992) found that consumer’s choice of a financial institution depends on the service charge policy, reputation and competitiveness of loan rates provided by the institutions. Boyd et al. (1994) conducted a survey and found that the five most important criteria identified by respondents in the USA were bank reputation, interest on saving accounts, interest charged on loans, quick service and location in the city. They also showed that the relative importance of selection criteria varied between groups of respondents.

Javalgi et al. (1989) in the USA found that financial factors (interest for saving accounts, fund safety and loan availability) play an important role in customers’ decision to take out a loan from a particular bank. Moreover, other studies like the study executed by Erol et al. (1990) on customers of conventional and Islamic banks in Jordan, found that another important factor affecting customers’ decision to choose a bank is bank confidentiality. This finding was supported also by Haron et al. (1994) and Holstius and Kaynak (1995). Haron et al. (1994) surveyed 301 Muslim and non-Muslim commercial bank customers in Malaysia to determine selection a dual banking environment. Their main findings apart from banks’ confidentiality were: fast and
efficient services, speed of transactions and friendliness of bank staff. Holstius and Kaynak (1995) investigated the importance of selected patronage factors used by Finnish customers by collecting data from 258 bank customers in Finland. The results showed once again that customer service, service quality, bank’s personnel openness and confidentiality were the key driving factors affecting customer decision to select a bank.

According to Kamakodi and Khan (2008), Indian banking industry is undergoing metamorphosis in terms of adoption of technology and automation. New generation of private sector banks which came into existence in the last ten years have gained a substantial market share and government owned banks are losing market share to these new banks. It is very important for banks to understand the preferences of the customers to offer the services required both to attract new clients and protect the existing client-base from migrating to other banks. A survey was conducted and results obtained from 292 clients were analyzed to understand the factors that influence bank selection reasons. The top 10 parameters based on importance were found to be Safety of Funds, secured ATMs, ATMs availability, reputation, personal attention, pleasing manners, confidentiality, and closeness to work, timely service and friendly staff willing to work.

According to Mokhlis (2009), recommendations from acquaintances are also among important factors in selecting a bank for both male and female customers. Almossawi (2001) found that recommendations from friends and relatives are of relevance despite the fact that young people prefer acting independently. In contrast, Gerrard and Cunningham (2001) found that third party influences are of little importance in commercial bank selection by customers. A study conducted by Chua (1981) on bank selection criteria found that social factors such as family and friends recommendations have an important influence on decisions by Asian customers for choosing a bank to trust their money. Al-Ajmi et al. (2009) compared the motives of bank customers for conventional and Islamic banks. They found that Islamic religious belief, social responsibility and pricing are the most important factors in choosing a bank to do business with.
Thomas Foscht et al. (2009) found the differences among the three age groups contained in Generation Y in terms of their sources of information, financial services used, likelihood of switching, and number of banks utilized. In addition, determinants of satisfaction, loyalty, and behavioral intention are primarily affected by satisfaction with employees and services rendered. There results indicated that as young people reach certain milestones, their needs become more multifaceted. Consequently, the determinants of satisfaction have also changed.

A study conducted by Mamunur Rashid, M. Kabir Hassan (2009) in Bangladesh in six full fledged banks found different factors such as Corporal efficiency; Core- Banking Services, Confidence, etc. were given higher weights by majority of the respondents. The report recommends introducing complete E-Banking solution, to increase advanced marketing efforts and to hire experienced human resources for better Islamic Banking activities in Bangladesh.

Charles Blankson et al. (2009) identified four key factors - convenience, competence, recommendation by parents, and free banking and/or no bank charges - to be consistent across the two economies. The recommendation of the study is that in the context of an open and liberalized market environment, retail bank marketing strategies should be standardized irrespective of the national development stage. It concludes that retail bank managers’ developing countries should provide consistent and good customer care.

Omar Masood et al. (2009) made an attempt to assess the degree of customer awareness, satisfaction as well as selection criteria. A sample of 200 respondents took part in this study. Majority of respondents had shown certain degree of satisfaction but few respondents also expressed their dissatisfaction to some of the bank's services.

Senyucel (2009) found that “assurance” was the most important bank selection criteria for Turkish Cypriots where “responsiveness” is the most important bank selection criteria for Greek Cypriots in the Cyprus Island.

Maiyaki (2011) investigated that there were various factors that had an influence on the customers’ choice of banks in the case of the Nigerian banks. Those were the size of
bank assets, availability of large branch network across the country, and reputation of the bank.

Katircioglu et al. (2011) found that there aren’t huge differences in the bank selection factors between Turkish and non-Turkish international university students in the case of a state university in North Cyprus. Availability and convenient location of ‘ATM services’ and ‘speed and quality of service’ are the most important factors for considering banks and their services for both Turkish and non-Turkish undergraduate students according to the findings of Katircioglu et al. (2011).

**Rational of the Study**

Gaps in the existing studies showed that there was a need to make a fresh attempt to understand the status of financial schemes offered by the financial institutions, find out the factors taken into consideration by the customers for the selection of a bank and examine the credit health check mechanism used by the executives in Indian banking sector as a number of improvements could be incorporated on account of gaps in the existing literature. The need for the study could be encapsulated in the following points:

- It is evident from the above discussion that numbers of financial schemes has been offered by the banks/financial institutions to the various types of consumers according to their respective requirements. However, the problem of recovery of loans is still a major cause of concern for financial institutions. The financial institutions has introduced and used different type of mechanism/models for assessing the credit worthiness of the customers and selection of a bank. Most of above mentioned articles and studies conceptually described the credit check mechanism in a general way. There are relatively fewer articles discussing Indian banking sector. A deeper understanding of status and impact of financial schemes and credit health check mechanism in Indian banking sector is necessary in today’s highly growing and customer-centered Indian banking sector. With this in view, a research was conducted to understand the status of financial schemes offered by the financial institutions to the customers and examine the credit health check mechanism used in Indian banking sector.
Most of the studies reported in the literature had been conducted in the developed countries. Since there was a significant impact of environment, culture, paying capacity, economy, habits etc. on customer behaviour, therefore, the concepts and practices pertaining to credit score system in Indian banking sector context would have to be different.

Hardly any study had been reported on Indian banking sector in this regard. The need for such a study arose as banking services now occupied the prime position among the industrial scenario for the country. Banking services were the fastest growing sector of Indian economy and hence the need for focusing on this sector.

Increased competition among the Indian financial institution required them to adopt the risk management strategy for growth. In order to counter competition, financial institution had to undertake continuous information gathering, analysis, and dissemination and use it to obtain a cutting edge in the present business scenario.

There were also methodological lacunae, which could be improved. The definition of concepts of ‘customer’, ‘credit score’, ‘assessment system’ and ‘type of models/technology’ needed to be defined in organizational context of Indian scenario. The review of literature implied customer retention, cross selling, 360 degree view, satisfaction, profitability, bad feeling, contributes implicitly and explicitly, separately.

Hence, the present study was conducted and it was a systematic attempt to analyze diverse dimensions of finance schemes in India and mechanism of credit health check system adopted by selected bank and the factors taken into consideration by the customers of the various banks for the selection of a bank in India because the growth potential of the financial institutions depends upon the credit strategy, management directives, employee’s involvement and type of credit score system and type of method/technology adopted by the financial institution to minimize the risk and maximize the portability and market share.