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The role of social capital in Michigan credit markets

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THE ROLE OF SOCIAL CAPITAL IN MICHIGAN CREDIT MARKETS

BY

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ABSTRACT

THE ROLE OF SOCIAL CAPITAL IN MICHIGAN CREDIT MARKETS

By

Marcelo E. Siles

This study examines the role that inter-personal relationships between lenders and their borrowers play in Michigan credit markets. Data was collected through a mail survey of credit executives at 162 Michigan banks located in urban centers of less than 10,000 people. Results are based on 103 responses representing a 65 percent response rate.

The results provide evidence that bankers consider both customer relationships and bank image in their community as important factors in advertising campaigns. The survey results also find that in addition to the usual financial performance variables (i.e, liquidity, profitability and managerial capabilities), business and social relationships between lenders and borrowers may significantly affect the likelihood of loan approval. When loan approval based on loan quality is uncertain, business and social relationships are found to increase in importance. The empirical analysis shows that bankers participate in social activities and perform transactions in order to develop social capital with their customers.

The empirical analysis supports the main hypothesis that the probability of a lender approving a loan application will increase if there is a high level of social capital (social and business relationships) between lenders and the potential borrower.

DEDICATION

TO: SUSANA, ROXANA ISABEL, GABRIEL ERNESTO AND MARIA ANGELA.

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CHAPTER 1

INTRODUCTION

Since Adam Smith's time classical economic theory has neglected the important role that inter-personal relationships play in exchange processes. Classical economic theory assumes that relationships among participants in the market do not affect the outcome of economic transactions. The theory assumes that economic decision-makers are rationally pursuing some goal: Producers are interested in maximizing profits and minimizing costs; consumers in maximizing their own well-being (utility); and government regulators in maximizing public welfare. Classical economists hold that consumers, in the process of maximizing their utilities, faced with a choice from among a number of possible options will choose the one that yields the highest utility. As Adam Smith remarked more than two centuries ago, "We are not ready to suspect any person to be defective of selfishness"[1].

Classical economists assume that people know their own minds and make choices consistent with their preferences. But other economists oppose this traditional view K. Boulding states that Economics specializes in the study of that part of the total system

[1] Adam Smith, The Theory of Moral Sentiments, 1969. First published 1759.

which is organized through exchange and which deals with exchangeables"[2], he prefers this definition of economics to those which define it in terms of scarcity or allocation because he contends that actual choices depend not only on preferences but on opportunities, and that under some circumstances quite small changes in either preferences or opportunities may result in large changes in actual choices made. This proposition applies just as much to ethical choices and common values as it does to private tastes.

Contrary to the assumptions of classical economic theory, this study considers inter-personal relationships between parties participating in a transaction to play a key role in the exchange process. Relationships affect the level of transaction costs; and since these costs limit the extent of the exchange process, inter-personal relationships have a direct impact on the outcome of these transactions.

Transaction costs may be categorized into three classes: a) the costs of obtaining information about a particular economic situation, i.e., costs incurred before the transaction take place, b) the costs of negotiating a particular exchange, and c) the costs of enforcing the terms of an exchange once the exchange has been consummated.

The hypothesis of this study hypothesize that trust, honesty, mutual understanding, among others qualities, are required to achieve high levels of inter-personal relationships and hence can affect the levels of transaction costs. An extensive period of doing business, a continual process of mutual interaction, and a permanent flow of reliable information can help to develop these behavioral standards. The study assumes, that lack of one or all of these behavioral standards has three effects: a) it

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[2]Kenneth E. Boulding, "Economics as a Moral Science", The American Economic Review, 1969.

increases the information required before a transaction is completed, b) it increases the details on which agreement must be reached when negotiating a contract, and c) it increases the resources devoted to monitoring and enforcing the terms of the contract after an agreement has been struck. Positive social and business relationships usually require high levels of trust. Transactions between parties with poor relationships among them usually require more time negotiating a contract, and thus increase transaction costs. Lack of good relationships may also require participants to demand more information about the good to be exchanged and the background of their counterparts.

This study analyzes how social and business relationships between bankers and their customers affect the outcome of credit transactions. It assumes that each one or both types of relationships have a direct impact on the access potential borrowers have to formal credit markets and the price or interest rates they are charged for these financial transactions.

The study addresses the hypothesis that relationships affect the costs of financial transactions between bankers and their customers and hence affect the pattern of financial transactions. Consequently good relationships are hypothesized to reduce transaction costs and therefore: a) increase the probability that customers will obtain a loan, and b) reduce the interest rate they are charged for their loans.

1.1. Hypothesis of the Study.

The main hypothesis of this study is that because relationships affect costs and transactions performed in credit markets, social capital among lenders and borrowers will influence the pattern and terms of credit transactions. High levels of Social Capital: a) will increases the probability that a customer's loan request will be granted, b) will

reduce interest rates and credit fees charged in credit transactions, and c) will reduce the level of perceived risk by both borrowers and lenders in a credit transaction.

1.2. The Concept of Social Capital.

Social Capital is defined by the product of relationships times a social distance weight. Relationships can exist; a) between two individuals, b) between an individual and a firm, c) between an individual and other individual working for a firm, and d) between two firms.

Relationships are defined as positive, neutral, and negative. Positive relationships are described as sympathetic where participant A's well-being improves based on the counterpart good fortune. Neutral relationships are related to indifference towards the counterpart's fortune, while negative relationships denote antipathy. Social distance involves awareness of one group or individual of other groups, individuals, and institutions. It is assumed that social distance range from zero to one; zero denotes no awareness while one is related to a total awareness of an individual or a group towards his or their counterparts.

We may say of A that he is very "close" to B, but that C is distant and reserved. D on the other hand is characterized as open-minded sympathetic, understanding, and generally "easy to meet". All these expressions describe and to some extent measure social distance[3]. People are clearly conscious, in their personal relationships, of the degree of intimacy. A is closer to B than C and the degree of this intimacy measures the influence which A has over the other.

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[3] R.E. Park 1924.

High levels of Social Capital are the result from the interaction of positive relationships and total awareness among parties. At this level, Social Capital constitutes a stock of relationships that can be used to influence the production and distribution of goods and services.

This study assumes that bankers and their customers can be engaged in social and/or business relationships. Social relationships are defined as a pattern of social interaction between two or more persons. Social relationships constitute the simplest unit of sociological analysis, and involve meaningful communication and awareness of the probable behavior of the other person. A social relationship may be of short duration (a driver trying to convince a policeman that he was not speeding) or of a more permanent nature (a husband-wife relationship). The more permanent social relationship may be called a social relation.[4] A social relation is a reciprocal pattern of interaction that persists over a period of time so that a stable set of social expectations develops.

Business relationships are defined as a state of affairs existing between those customarily engaged in commercial or mercantile activity as a means of livelihood and typically involve some independence of judgement and power of decision.[5] Business relationships need to be differentiated from the concept of business practices. Business practices are defined as systematic actions that specify the form, manner, and order of conducting a business transaction (i.e., a credit operation).

Only the initial transaction performed between two parties is considered as a pure business relationship. This is contingent upon no previous contact between the financial units before the initial transaction. Successive transactions not only improve

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[4] "A Modern Dictionary of Sociology", G.A. Theodorson, A.G. Theodorson 1969.

[5] Webster Third New International Dictionary.

the level of business relationships between participating parties but they also tend to develop a mix of business and social relationships.

A purely social relationship is confined to persons participating in social events. This type of relationship may not have any effect on the outcome of financial transactions because no transaction's negotiation takes place. Often, however social relationships can serve as a basis for the development of business relationships. This is because their social relationship may reduce transaction costs in a later business arrangements.

Banks recognize the importance of good relationships with their customers and the effect of relationships on transaction costs. Poor customer relationships make it difficult to compete with others offering similar services because transaction costs are higher. Thus, creating good relationships and a positive bank image has the effect of lowering transaction costs.

Customers have their own perceptions about their relationships (social and business) with their financial institution and its personnel. To improve their access to credit, customers tend to develop longstanding relationships with their primary financial institutions. Because of the concern about their relationships with their primary financial institution, customers provide their banks personal financial data and information about their management practices. In addition, they participate in social events with bank officials to improve their relationships with bank personnel.

1.3. Related Theoretical and Empirical Studies

Many sociological studies describe the different types of relationships that rule human behavior. Ferdinand Tonnies in the nineteenth century developed a theory that

attempted to explain the changes that mankind was facing due to the industrial revolution. His view was that humanity was moving from a period of Gemeinschaft (community) to that of Gesellschaft (society).

Gemeinschaft represents an idealized precapitalistic, preindustrial, homogenous rural village united by overlapping ties of kinship, economic interdependence, and common values. On the other hand, Gesellschaft represents urban, capitalistic, industrial society. In this type of society individuals relate only in contractual relationships for specific and limited purposes, primarily to further their individual economic goals.

Sociologists describe two basic kinds of relationships. Charles H. Cooley (1962) describes the primary relationships associated with Gemeinschaft found within families, children's play groups, in rural villages, and in ethnic urban neighborhoods. People in primary relationships are concerned about each other. Groups in which primary relationships generally occur are homogeneous, rather small, somewhat permanent, and offer continued face-to-face relationships.

Individuals involved in secondary relationships meet only for specific purposes of a limited nature. Such relationships are typical of Gesellschaft. Secondary relationships occur, for example, between a business person and a customer or between a bureaucrat and client and are typical in a modern urban area. In secondary relationships, the overall personalities and lives of the individuals involved are irrelevant to the encounter.

Wireman (1984) developed the term "Intimate Secondary Relationships." The concept describes relationships that have the dimensions of warmth, rapport, and intimacy normally connected with primary relationships yet occur within a secondary setting and have some aspects of secondary relationships.

Intimate secondary relationships differ from ordinary secondary relationships in that participants know each other's characters in sufficient depth to be able to develop trust or to determine whether trust is warranted. On the other hand, the individual rather than the family group tends to be involved for both types of secondary relationships.

Wireman (1984) suggests that an intimate secondary relationship differs from both primary and secondary relationships in terms of commitment. In most primary group settings, such as friendships or family relations, the activities and time commitment tend to be open-ended and diffuse. Attempts to establish stricter limits or to withdraw involve considerable cost and frequently causes personal hostility.

The commitment experienced by members of a group involved in intimate secondary relationships is characterized by an intensive involvement of group members even though they are not necessarily close friends. This type of relationship persists even after an individual leaves the group in which they were formed. The result can be a network of relationships throughout a community among persons who have had previous group affiliations.

The essence of the trust relation that develops in an intimate secondary relationship is not of a personal friendship but trust in the other participants' character and confidence in one's own ability to rely on or at least judge the accuracy of information given. A close relationship between two individuals is characterized by mutual understanding, a degree of intimacy, and sympathy. (R.H. Frank 1992).

Another interesting aspect that is extensively analyzed by sociologists is the concept of social networks. Elizabeth Bott (1971) describes close-knit and loose-knit networks. In the close-knit network, relatives, friends, neighbors, and co-workers all

know each other and provide various types of mutual support. It also serves as a reference group for norms and values.

C. Fisher's et al. (1977) showed that networks vary widely. Generally people with more opportunities tend to have larger social networks. For example, educated people not only meet people in college or at professional conferences, they are also more likely to have the money and other resources needed to maintain a large network.

Simultaneously, Fisher et al. found that those who were most involved with their neighbors tended to be those who had the fewest opportunities to develop relationships elsewhere. Thus people in small towns, low income respondents, minorities, women with small children, the elderly, and nonworking people tended to be more dependent on neighbors as part of their social networks.

In his analysis of the concept of "distance" as applied to humans, Park (1924) attempted to reduce to measurable terms the grades and degrees of understanding and intimacy which characterize personal and social relations.

The strength of relationships is measured by social distance between two individuals "social cohesion" is used as reference to situations in which individuals are bound to one another by common social and cultural commitments. Etzioni (1961) defines cohesion as a positive expressive relationship between two or more actors.

Bogardus (1925) defines three grades of understanding and intimacy among races and individuals: 1) friendly feelings, 2) feeling of neutrality, and 3) feelings of antipathy. Based on an empirical study made up of 248 people from many different races, Bogardus found that the origins and development of racial antipathy fell into certain categories.

The first and largest classification is composed of traditions and commonly accepted opinion. Personal friends and acquaintances in one's own "universe of discourse" who possess prestige in one's own eyes can affect the personal perceptions regarding a third party. The second classification is related to unpleasant racial and ethnic sense impressions personally experienced in the early years of life. The third classification is based on illustrations of disgust as a type of sensory impression.

Bogardus (1933) intended to develop a social distance scale based on a person's expressions or perceptions regarding other persons. These expressions represent several different types of social relationships; that is, they relate to contacts within the family, social or fraternal groups, neighborhoods, churches, schools, play groups, transportation groups, occupational and business groups, and other contacts within political or national groups. Underlaying the scale is the basic concept that the more prejudiced an individual is against a particular group, the less the person will wish to interact with members of the group.

In a Bogardus scale someone willing to accept members of a certain group as friends would also be willing to accept them as neighbors, co-workers, fellow citizens, and all other more distant relationships. The Bogardus approach to attitude measurement is an effective means of estimating the esteem in which a group is held by other distant groups of persons.

1.4 The Effect of Relationships on the Selection of Transaction Partners.

The main hypothesis of this study is that relationships affect the pattern and terms of trade. Economic theorists have generally neglected the effect that relationships have on transactions. Adam Smith, however, considered the importance of relationships and their impact on the outcome of many types of transactions. He wrote:

> "When a person employs only his own stock in trade, there is no trust; and the credit that he may get from other people, depends, not upon the nature of his trade, but upon their opinion of his fortune, probity, and prudence. . . . But some trades, e.g., that of a banker, may be necessarily confined to persons of more than average trustworthiness, and this may raise the rate of profit above the ordinary level if such persons are not sufficiently plentiful." ("The Wealth of Nations" pp. 105).

This dissertation hypothesizes that the prevailing relationships between participants in a credit transaction do affect the outcome of the transaction. There are other studies that are indirectly related to the concept of social capital and trade in the economic literature. All these studies highlight the role that relationships play in the market affecting the outcome of different types of transactions. For example, Charles A. Gilliland (1985) expresses an awareness of the role of relationships, he wrote, "A less than-arm's-length sale involves extra-market considerations. Some element of personal obligation, affection, or respect enters the motivation of the individual making the transfer. He may sell to a nephew, church, or even a neighbor at a price below that

obtainable in an arm's-length sale. The value exchanged is equal to the actual price paid, plus the value of goodwill involved."

L. Robison and A. Schmid (1991), concluded in their study that the economic outcome of exchanges is affected by the nature of relationships. They found that when the seller and buyer are known to each other, even if the trade involved a standardized good, one cannot predict the outcome accurately without considering the relationship between the economic agents. Their study shows that in a car transaction when the seller is wealthier than the buyer and sympathetic he is willing to offer a subsidy (price concession). On the other hand, when the seller was less wealthy and sympathetic to the buyer, he continue to offer subsidies to the buyer but these subsidies were less than when the relative income levels were reversed. In general, as the wealth of sellers decreased relative to potential buyers, the price premiums required by sellers increased.

1.5 Social Capital in Formal Credit Markets -

Relationships between participants have influenced the development of credit markets through the years. Although the related literature does not consider explicitly the role that social capital plays in credit transactions, many papers have reported on the issue. Partel (1984) suggests that meeting a customers' need for belongingness, recognition, and support will be the key for the successful bank of the future. He states that to fulfill this role banks will need to develop a personal relationship with the customer. A relationship exists when the personal needs of the customer and the bank are satisfied; that is, when both believe that there is a self-evident sense of reward, and, most critically, when both are confident that there will be future rewards.

Hood and Walters (1985) analyzed how market research on "established bank customers" can be used to improve bank profitability. They defined established bank customers as individuals who have lived in the bank's market area for many years, have a knowledge of financial matters, and are well into their career and lifestyle. The study concludes that the reasons why individuals select a particular bank are based mainly on two variables, convenience and personal recommendations. Established bank customers play an important role in this process.

Metzger and Dey (1986) studied what bank customers value. Their work suggests that high quality, personalized service is potentially crucial to a bank's attempt to attract and keep high-income customers. They conclude that product development appears far less important than the further enhancement of personalized service levels in the bank branches.

Based on a mail survey sent to 3,830 households in Virginia, Gwin and Lindgren (1986) evaluated whether attribute determinance was a function of demographic characteristics. The results indicate that there is a substantial segment of the market that is sensitive to service and a personal relationship with the bank rather than its fee structure, convenience, rates paid, or innovativeness.

Parker and Coulter (1987) in their study of how consumers rate small and large banks, suggested that small banks have at least one effective advantage, geography. In many rural areas, people have grown up with the local bank. Their parents used the local bank, and they will use it too. Over the years, trust in the bank by the community tends to develop. Large banks are viewed as "outsiders" and have to earn the trust of the community. Their study concludes that small banks are viewed as having significant

advantages over large banks in the factors of friendliness of the institution and ease in obtaining loan approvals.

The current trends in the United States are to larger banking firms, usually nationally chartered, buying or merging community independent banks. The "new" emerging institutions are usually managed by personnel that is brought from outside the community, increasing by this way the perception of "outsiders" that the community has about the large banks. To overcome this perception bankers have to work hard to earn the trust of the community and to create a bank's image as community supportive and people oriented institution.

All the studies presented above provide evidence that close relationships between bankers and their customers have important effects on the development of the different transactions performed by the banking system.

1.6 Study Purposes and Objectives -

The main purpose of this study was to assess the role that social capital plays in the evaluation of loan applications and credit granting processes within banks. Specifically, this study also evaluates how lenders perceive social capital and its two components, social and business relationships.

The specific objectives of the study were:

1) To determine the importance of social capital in granting loans.

2) To measure the importance that bankers assign to their social and business relationships with their customers.

3) To investigate the relative importance of social and business relationships in the evaluation of credit applications and determination of loan conditions.

4) To identify the activities and special programs promoted by bankers to develop new relationships and improve prevailing relationships with their customers.

5) To identify the common factors that determine a customer's creditworthiness and the development of social and business relationships between bankers and their customers.

6) To identify further research questions.

1.7 Scope and Methods. -

The data used in this dissertation are from a mail survey sent to bank executives in charge of credit departments. The sample population consisted of Michigan banks located in urban areas with less than 10,000 residents. A mailing list containing data on 164 banks was constructed using the Financial Institutions Bureau of the Michigan Department of Commerce latest report (1989) and the Michigan Bankers Association "Blue Book" (1990-1991).

The survey used Dillman's Total Design Method for mail surveys. Dillman's instructions for the first mail out and the different follow ups were followed carefully. Sixty five percent of those sent surveys responded.

1.8 Organization of the Study -

The remainder of this study is organized as follows: Chapter 2 develops a theoretical framework and elaborates the study's main hypotheses. Chapter 3 describes the survey methodology and the characteristics of the respondents and non-respondents to the survey. Chapter 4 presents a summary of the survey results. Chapter 5 begins discussing the two statistical techniques -factor analysis and logistic regressions- used in

the analysis and presents the results of the data analysis. The study concludes with Chapter 6 which summarizes the main conclusions regarding the role that social capital plays in credit transactions, and suggests areas for further research.

CHAPTER 2

A THEORETICAL FRAMEWORK

2.1 Introduction.

The objective of this chapter is to develop mathematical models that integrate social capital into the usual utility or profit maximizing models for bankers. The models demonstrate that social capital affects: the amount of credit granted by bankers, a bank's advertising campaign, and the amount and type of activities in which bank personnel participate.

Social capital is a dynamic concept. Social capital can change depending on actions taken by the participants. In most cases, participants want to improve business and social relationships because they tend increase social capital. The models assume there exists a resources that can be expended to increase social capital.

2.2 The Models

A utility function that takes into account the income of two parties (i) and (j) involved in a transaction was developed by Robison and Schmid[6]. The utility function

[6] L. Robison and A. Schmid, "Has the invisible hand lost its way? Can Agriculture prosper in the 21st century without caring and sense of community?", Michigan State University, Department of Agricultural Economics, (1992) mimeo.

takes into account party (i)'s income as a function of its sensitivity to party (j)'s well being.

The degree of interdependence depends on social capital weights K_t^{ji} and K_t^{ij} measured at time t that can be positive, negative or neutral and which can be altered by investments or other activities. In addition, i's utility depends on i's self-esteem or self awareness K_t^{ii}. The model also recognizes that i's income π_t^i, may be a function of j's closeness to i; thus i's income is written as $\pi_t^i(K_t^{ji})$.

The general form of this utility function is:

$$\max_{K_t^{ij}} U^i = U^i[K_t^{ii}\pi_t^i(K_t^{ji}) \ , \ K_t^{ij}\pi_t^j(K_t^{ji})] \qquad (2.1)$$

To summarize the notation used:

π_t^i is i's profit function in the t^{th} period

π_t^j is j's profit function in the t^{th} period

K_t^{ij} describes the closeness "i" feels towards "j" in period t.

K_t^{ji} describes the closeness "j" feels towards "i" in period t.

and

K_t^{ii} describes participant's "i" self respect or social closeness to himself in period t.

The variables in the utility function have the following relationships:

$$\frac{\partial U^i}{\partial \pi_i} > 0 \quad \text{if} \quad K_t^{ii} > 0$$

$$\frac{\partial U^i}{\partial \pi_j} > 0 \quad \text{if} \quad K_t^{ij} > 0$$

In what follows, we consider the effects of social capital on interest rates, credit level, investments return rates and cost of promotional activities.

2.2.1 The Bank's Profit Function.

Assume banks generate a large percentage of their revenue from granting loans. In this process banks incur variable and fixed costs. Variable costs are assumed to depend on the amount of funds lent and the relationships between bank "i" and customer "j" at time "t" described by K_t^{ij}. In addition, variable costs are reduced by the social distance between bankers and their customers. Fixed costs include overhead expenses and depreciation allowances.

Bankers recognize that it is possible to alter K_t^{ji} by different promotional activities, such as, advertising campaigns, social interactions with their customers and supporting community events. These promotional activities are included in the bankers' profit function.

The bankers' profit function for a specified period is given by:

$$\pi_t^i = \rho(\alpha) D_t^j - C(D_t^j, K_t^{ji}) - B - P_t^k K_t^{ji} \qquad (2.2)$$

where:

π_t^i is the i[th] banker's profit in period t.

ρ is the average interest rate charged by bankers on their credit operations.

α are the customer's characteristics that include the borrower's liquidity, profitability, managerial capabilities, etc.

D_t^j is the amount of loans granted to customer "j" in period "t".

$C(D_t^j , K_t^{ji})$ are variable costs.

B are fixed costs.

P_t^k is the unit price of promotional activities.

The following signs are assumed:

$\frac{\partial C}{\partial D_t^j} > 0$ an increasing marginal cost due to lending activities.

$\frac{\partial C}{\partial K_t^{ji}} < 0$ as the social distance of customer "j" towards banker "i" increases, the costs of their credit transactions decreases.

It is also assumed that:

$$\frac{\partial^2 C}{\partial K_t^{ji2}} > 0$$

$$\frac{\partial i}{\partial \alpha} > 0$$

$$\frac{\partial^2 C}{\partial D_t^j \partial K_t^{ji}} < 0$$

2.2.2. Model 1. Selfish Bankers ($K_t^{ij} = 0$) , Close Customers ($K_t^{ji} > 0$).

This model takes into account that a bank's cost of providing loans can be reduced if customers can be made to feel close to the bank as an institution or to personnel that works at the bank.

The banker maximizes:

$$\max_{D_t^i,\, K_t^{ji}} U_t^i = U_t^i[K_t^{ii} \pi_t^i(K_t^{ji})] \qquad (2.3)$$

Maximizing equation (2.3) is equivalent to maximizing π_t^i as long as $\frac{\partial U^i}{\partial \pi_t^i} > 0$,

so that:

First order conditions necessary to maximize π_t^i are;

$$\frac{d\pi_t^i}{dD_t^j} = \rho(\alpha) - \frac{\partial C}{\partial D_t^j} = 0$$

$$\frac{d\pi_t^i}{dK_t^{ji}} = - \frac{\partial C}{\partial K_t^{ji}} - P_t^k = 0 \qquad (2.4)$$

Totally differentiating the two equations in 2.4.

$$\frac{\partial i}{\partial \alpha} d\alpha - \frac{\partial^2 C}{\partial D_t^{j2}} dD_t^j - \frac{\partial^2 C}{\partial D_t^j \partial K_t^{ji}} dK_t^{ji} = 0 \qquad (2.5)$$

and

$$- \frac{\partial^2 C}{\partial K_t^{ji2}} dK_t^{ji} - \frac{\partial^2 C}{\partial K_t^{ji} \partial D_t^j} dD_t^j - dP_t^k = 0 \qquad (2.6)$$

thus

$$\begin{bmatrix} \frac{\partial^2 C}{\partial D_t^{j2}} & \frac{\partial^2 C}{\partial D_t^j \partial K_t^{ji}} \\ \frac{\partial^2 C}{\partial K_t^{ji} \partial D_t^j} & \frac{\partial^2 C}{\partial K_t^{ji2}} \end{bmatrix} \begin{bmatrix} dD_t^j \\ dK_t^{ji} \end{bmatrix} = \begin{bmatrix} \frac{\partial i}{\partial \alpha} d\alpha \\ -dP_t^k \end{bmatrix} \qquad (2.7)$$

Second Order Conditions are satisfied if:

$$\frac{\partial^2 C}{\partial D_t^{j2}} < 0$$

$$\frac{\partial^2 C}{\partial K_t^{ji2}} < 0$$

and

$$\delta = \left(\frac{\partial^2 C}{\partial D_t^{j2}}\right)\left(\frac{\partial^2 C}{\partial K_t^{ji2}}\right) - \left(\frac{\partial^2 c}{\partial K_t^{ji} \partial D_t^{j}}\right)^2 > 0 \qquad \textbf{(2.8)}$$

Applying Crammer's rule in equation (2.7), we have;

$$dD_t^j = \frac{\left(\frac{\partial \rho}{\partial \alpha} d\alpha\right)\left(\frac{\partial^2 C}{\partial K_t^{ji2}}\right) - \left(-dP_t^k\right)\left(\frac{\partial^2 C}{\partial D_t^j \partial K_t^{ji}}\right)}{\delta} \qquad \textbf{(2.9)}$$

and

$$dK_t^{ji} = \frac{\left(\frac{\partial^2 C}{\partial D_t^{ji}}\right)\left(-dP_t^k\right) - \left(\frac{\partial^2 C}{\partial K_t^{ji} \partial D_t^{j}}\right)\left(\frac{\partial \rho}{\partial \alpha} d\alpha\right)}{\delta} \qquad \textbf{(2.10)}$$

In equation (2.9) if $d\alpha = 0$, then:

$$\frac{dD_t^j}{dP_t^k} = \frac{(\frac{\partial^2 C}{\partial D_t^j \partial K_t^{ji}})}{\delta} < 0 \qquad (2.11)$$

As the price of promotional activities increases, part of the funds initially allocated for new loans are diverted to support the price increase.

If $dP_t^k = 0$, then:

$$\frac{dD_t^j}{d\alpha} = \frac{(\frac{\partial \rho}{\partial \alpha})(\frac{\partial^2 C}{\partial K_t^{j2}})}{\delta} > 0 \qquad (2.12)$$

Bankers will disburse more loans to those customers with good financial standings reflected by the variable α.

In equation (2.10), If $d\alpha = 0$, then:

$$\frac{dK_t^{ji}}{dP_t^k} = \frac{-(\frac{\partial^2 C}{\partial D_t^{j2}})}{\delta} < 0 \qquad (2.13)$$

The higher the price of promotional activities, the less bankers are willing to increase social capital through promotional activities.

If $dP_t^k = 0$, then:

$$\frac{dK_t^{jl}}{d\alpha} = \frac{-\left(\frac{\partial^2 C}{\partial K_t^{jl} \partial D_t^j}\right)\left(\frac{\partial \rho}{\partial \alpha}\right)}{\delta} > 0 \qquad (2.14)$$

Bankers find it more profitable to build social capital with their best customers.

2.2.3. The Customer's Profit Function.

Assume customers generate income through returns on investments minus interest payments on debt and other withdrawals made in period t. The average interest rate is a function of the customer's financial standing in period t.

The customer's profit function for a specified period is given by:

$$\pi_t^j = rA_t^j - \rho(\alpha)D_t^j - W_t^d \qquad (2.15)$$

where:

π_t^j are the profits generated in period "t" by the customer through investments made with borrowed money.

r is the customer's return on assets.

A_t^j are the customer's total assets in period "t" including the new investment.

ρ is the interest rate that the customer pays on its debt.

α are the customer's characteristics that include the borrower's liquidity, profitability, managerial capabilities, etc.

D_t^j is the customer's debt level in the period.

W_t^d is the amount of withdrawals in the period.

E_t^j is the customer's equity level in the period.

According to standard accounting principles;

$$A_t^j = D_t^j + E_t^j \tag{2.16}$$

2.2.4. Model 2. Altruistic Bankers ($K_t^{ij} > 0$) , Close Customers ($K_t^{ji} > 0$).

This model recognizes that bankers are concerned with their customers' financial situation. A customer's profit function influences the banker's profit function by the banker's sensitivity towards the customer at a certain time period reflected by the social capital variable (K_t^{ij}).

As in model 1, maximizing the banker's utility function is equivalent to maximizing the banker's profit function as long as $\frac{\partial U^i}{\partial \pi_t^i} > 0$.

In this case, the banker's profit function is:

$$\pi_t^i = (\rho + \alpha)D_t^j - C(D_t^j, K_t^{ji}) - B - P_t^k K_t^{ji} + K_t^{ij}[r(D_t^j + E_t^j) - \rho D_t^j - W_t^d] \quad (2.17)$$

The following signs are assumed:

$\frac{\partial C}{\partial D_t^j} > 0$ lending activities have a positive marginal cost.

$\frac{\partial C}{\partial K_t^{ji}} < 0$ the closer a customer is to a bank, the lower the cost of loan granting.

$[r - \rho] > 0$ the customer's return on investments is greater than the interest paid on debt.

It is also assumed that:

$$\frac{\partial^2 C}{\partial D_t^{j2}} > 0$$

$$\frac{\partial^2 C}{\partial K_t^{ji} \partial D_t^j} < 0$$

$$\frac{\partial^2 C}{\partial K_t^{ji2}} > 0$$

First order conditions found by maximizing π_t^i with respect to D_t^j and K_t^{ji} are;

$$\frac{d\pi_t^i}{dD_t^j} = (\rho + \alpha) - \frac{\partial C}{\partial D_t^j} + K_t^{ij}[r - \rho] = 0$$

$$\frac{d\pi_t^i}{dK_t^{ji}} = - \frac{\partial C}{\partial K_t^{ji}} - P_t^k = 0 \qquad (2.18)$$

Totally differentiating the two equations in (2.18) results in the expression.

$$- \frac{\partial^2 C}{\partial D_t^{j2}} dD_t^j + K_t^{ij} dr + (r - \rho) dK_t^{ij} + d\alpha = 0 \qquad (2.19)$$

and

$$- \frac{\partial^2 C}{\partial K_t^{ji} \partial D_t^j} dD_t^j - \frac{\partial^2 C}{\partial K_t^{ji2}} dK_t^{ji} - dP_t^j = 0 \qquad (2.20)$$

$$\begin{bmatrix} - \frac{\partial^2 C}{\partial D_t^{j2}} & (r - \rho) \\ - \frac{\partial^2 C}{\partial K_t^{ji} \partial D_t^j} & - \frac{\partial^2 C}{\partial K_t^{ji2}} \end{bmatrix} \begin{bmatrix} dD_t^j \\ dK_t^{ji} \end{bmatrix} = \begin{bmatrix} - (+ K_t^{ij} dr + d\alpha) \\ dP_t^j \end{bmatrix} \qquad (2.21)$$

Second order conditions are satisfied if:

$$(-\frac{\partial^2 C}{\partial D_t^{j2}}) < 0$$

$$(-\frac{\partial^2 C}{\partial K_t^{ji2}}) < 0$$

and

$$\delta = (\frac{\partial^2 C}{\partial D_t^{ji2}})(\frac{\partial^2 C}{\partial K_t^{ji2}}) + (\frac{\partial^2 C}{\partial K_t^{ji}\partial D_t^{j}})(r - \rho) > 0 \qquad (2.22)$$

Applying Crammer's rule.

$$dD_t^j = \frac{\frac{\partial^2 C}{\partial K_t^{ji2}} K_t^{ij} dr + \frac{\partial^2 C}{\partial K_t^{ji2}} d\alpha - (r - \rho) dP_t^j}{\delta} \qquad (2.23)$$

If $dr = 0$ and $d\alpha = 0$, we obtain.

$$\frac{dD_t^j}{dP_t^j} = \frac{-(r - \rho)}{\delta} < 0 \qquad (2.24)$$

The higher the price of promotional activities the lower the amount of funds that are profitable for bankers to lend.

If $dP_t^j = 0$ and $dr = 0$

$$\frac{dD_t^j}{d\alpha} = \frac{(\frac{\partial^2 C}{\partial K_t^{j2}})}{\delta} > 0 \qquad (2.25)$$

Bankers will tend to disburse more loans to those customers in good financial standing.

If $dP_t^j = 0$ and $d\alpha = 0$

$$\frac{dD_t^j}{dr} = \frac{K_t^{ij}(\frac{\partial^2 C}{\partial K_t^{j2}})}{\delta} > 0 \qquad (2.26)$$

The higher the return on a customer's investments the larger the amount of funds the customer can borrow assuming $K_t^{ij} > 0$.

Similarly;

$$dK_t^{ji} = \frac{(-\frac{\partial^2 C}{\partial D_t^{j2}})(dP_t^j) - (\frac{\partial^2 C}{\partial K_t^{ji}\partial D_t^j})(K_t^{ij}dr + d\alpha)}{\delta} \tag{2.27}$$

If $dr = 0$ and $d\alpha = 0$, then using equation (2.27) we obtain.

$$\frac{dK_t^{ji}}{dP_t^j} = \frac{-(\frac{\partial^2 C}{\partial D_t^{j2}})}{\delta} < 0 \tag{2.28}$$

As the unit price of promotional activities increases bankers will tend to reduce the social capital building activities.

If $dP_t^j = 0$ and $d\alpha = 0$, then;

$$\frac{dK_t^{ji}}{dr} = \frac{(-\frac{\partial^2 C}{\partial K_t^j \partial D_t^j})K_t^{ij}}{\delta} > 0 \tag{2.29}$$

Bankers prefer to build social capital with customers who earn the higher rates of return on their investments.

If $dr = 0$ and $dP_t^j = 0$

$$\frac{dK_t^{ji}}{\partial \alpha} = \frac{-\left(\frac{\partial^2 C}{\partial K_t^{ji} \partial D_t^j}\right)}{\delta} > 0 \qquad (2.30)$$

Bankers prefer to build social capital with customers who are in good financial standing.

2.2.5 Model 3 Selfish banker ($K_t^{ij} = 0$) and caring customer ($K_t^{ji} > 0$).

This model assumes that interest rates charged on credit operations are a function of how close the customer is to the bank as well as the customer's financial standing. The bank's profit function can be written as:

$$\pi_t^i = \rho(\alpha , K_t^{ji}) - C(D_t^j) - B - P_t^k K_t^{ji} \qquad (2.31)$$

First order conditions found by maximizing π_t^i with respect to D_t^j and K_t^{ji} are;

$$\frac{d\pi_t^i}{dD_t^j} = \rho(\alpha , K_t^{ji}) - \frac{\partial C}{\partial D_t^j} = 0$$

$$\frac{d\pi_t^i}{dK_t^{ji}} = D_t^j \frac{\partial i}{\partial K_t^{ji}} - P_t^k = 0 \qquad (2.32)$$

Totally differentiating the two equations above,we obtain:

$$- \frac{\partial^2 C}{\partial D_t^{j2}} dD_t^j + \frac{\partial \rho}{\partial K_t^{ji}} dK_t^{ji} + \frac{\partial \rho}{\partial \alpha} d\alpha = 0 \qquad (2.33)$$

and

$$\frac{\partial \rho}{\partial K_t^{ji}} dD_t^j + D_t^j \frac{\partial^2 \rho}{\partial K_t^{ji2}} dK_t^{ji} - dP_t^k = 0 \qquad (2.34)$$

With equations (2.33) and (2.34), we can set:

$$\begin{bmatrix} - \frac{\partial^2 C}{\partial D_t^{ji2}} & \frac{\partial \rho}{\partial K_t^{ji}} \\ \frac{\partial \rho}{\partial K_t^{ji}} & D_t^j \frac{\partial^2 \rho}{\partial K_t^{ji2}} \end{bmatrix} \begin{bmatrix} dD_t^j \\ dK_t^{ji} \end{bmatrix} = \begin{bmatrix} - \frac{\partial \rho}{\partial \alpha} d\alpha \\ dP_t^k \end{bmatrix} \qquad (2.35)$$

Second order conditions are satisfied if:

$$(- \frac{\partial^2 C}{\partial D_t^{ji2}}) < 0$$

$$D_t^j (\frac{\partial^2 \rho}{\partial K_t^{ji2}}) < 0$$

and

$$\delta = (-\frac{\partial^2 C}{\partial D_t^{j2}}) D_t^j (\frac{\partial^2 \rho}{\partial K_t^{j2}}) - (\frac{\partial \rho}{\partial K_t^{ji}})^2 > 0 \qquad (2.36)$$

Applying Crammer's rule

$$dD_t^j = \frac{(-\frac{\partial \rho}{\partial \alpha}) D_t^j (\frac{\partial^2 \rho}{\partial K_t^{j2}}) d\alpha - dP_t^k (\frac{\partial \rho}{\partial K_t^{ji}})}{\delta} \qquad (2.37)$$

If $d\alpha = 0$, then;

$$\frac{dD_t^j}{dP_t^k} = \frac{-(\frac{\partial \rho}{\partial K_t^{ji}})}{\delta} < 0 \qquad (2.38)$$

As in previous models, when the price of promotional activities increases, bankers tend to reduce their loan portfolio.

If $dP_t^k = 0$, then;

$$\frac{dD_t^j}{d\alpha} = \frac{-(\frac{\partial \rho}{\partial \alpha}) D_t^j (\frac{\partial^2 \rho}{\partial K_t^{j2}})}{\delta} > 0 \qquad (2.39)$$

Bankers are willing to disburse more loans to those customers with good financial measures.

Similarly;

$$dK_t^{ji} = \frac{(-\frac{\partial^2 C}{\partial D_t^{ji2}})dP_t^k - (\frac{\partial \rho}{\partial K_t^{ji}})(-\frac{\partial \rho}{\partial \alpha})d\alpha}{\delta} \tag{2.40}$$

If $d\alpha = 0$, then;

$$\frac{dK_t^{ji}}{dP_t^k} = \frac{-(\frac{\partial^2 C}{\partial D_t^{ji}})}{\delta} < 0 \tag{2.41}$$

The higher the price of promotional activities the less effort that bankers will make to build social capital.

If $dP_t^k = 0$, then;

$$\frac{dK_t^{ji}}{d\alpha} = \frac{(\frac{\partial \rho}{\partial K_t^{ji}})(\frac{\partial \rho}{\partial \alpha})}{\delta} > 0 \tag{2.42}$$

Bankers will build social capital with customers with the best financial background.

2.2.6 Model 4 An altruistic banker ($K_t^{ij} > 0$) and caring customer ($K_t^{ji} > 0$).

This model assumes that bankers set interest rates on loans based on the customer closeness to the bank and the customer's financial standings. The bankers' profit function is expressed as:

$$\pi_t^i = (\rho + \alpha , K_t^{ji})D_t^j - C(D_t^j) - B - P_t^k K_t^{ji} + K_t^{ij}[r(D_t^j + E_t^j) - (\rho , K_t^{ji})D_t^j - W_t^d] \tag{2.43}$$

First order conditions are found by maximizing π_t^i with respect to D_t^j and K_t^{ji}.

$$\frac{d\pi_t^i}{dD_t^j} = (\rho + \alpha , K_t^{ji}) - \frac{\partial C}{\partial D_t^j} + K_t^{ij}[r - (\rho , K_t^{ji})] = 0$$

$$\frac{d\pi_t^i}{dK_t^{ji}} = D_t^j(\frac{\partial(\rho + \alpha , K_t^{ji})}{\partial K_t^{ji}}) - P_t^k - K_t^{ij} D_t^j(\frac{\partial(\rho , K_t^{ji}}{\partial K_t^{ji}}) = 0 \tag{2.44}$$

Totally differentiating the equations in (2.44).

$$- \frac{\partial^2 C}{\partial D_t^{j2}} dD_t^j + [\frac{\partial(\rho + \alpha\ ,\ K_t^{ji})}{\partial K_t^{ji}} - K_t^{ij}(\frac{\partial(\rho\ ,\ K_t^{ji})}{\partial K_t^{ji}}]dK_t^{ji}$$

$$+ K_t^{ij} dr + \frac{\partial(\rho + \alpha\ ,\ K_t^{ji})}{\partial \alpha} d\alpha = 0 \qquad \textbf{(2.45)}$$

and

$$[\frac{\partial(\rho + \alpha\ ,\ K_t^{ji})}{\partial K_t^{ji}} - K_t^{ij}(\frac{\partial(\rho\ ,\ K_t^{ji})}{\partial K_t^{ji}})]dD_t^j + D_t^j[(\frac{\partial^2(\rho + \alpha\ ,\ K_t^{ji})}{\partial K_t^{ji2}}) - K_t^{ij}(\frac{\partial^2(\rho\ ,\ K_t^{ji})}{\partial K_t^{ji2}}]dK_t^{ji}$$

$$- dP_t^K - D_t^j(\frac{\partial(\rho\ ,\ K_t^{ji})}{\partial K_t^{ji}})dK_t^{ij} + D_t^j(\frac{\partial^2(\rho + \alpha\ ,\ K_t^{ji})}{\partial K_t^{ji}\partial \alpha})d\alpha = 0 \qquad \textbf{(2.46)}$$

With equations (2.45) and (2.46), we can establish;

Let;

$$\mu = [\frac{\partial(\rho + \alpha\ ,\ K_t^{ji})}{\partial K_t^{ji}} - K_t^{ij}(\frac{\partial(\rho\ ,\ K_t^{ji})}{\partial K_t^{ji}})] > 0$$

and

$$\epsilon = [\frac{\partial^2(\rho + \alpha\ ,\ K_t^{ji})}{\partial K_t^{ji2}} - K_t^{ij}(\frac{\partial^2(\rho\ ,\ K_t^{ji})}{\partial K_t^{ji2}})] < 0$$

Then;

$$\begin{bmatrix} -\frac{\partial^2 C}{\partial D_t^{j2}} & \mu \\ \mu & D_t^j e \end{bmatrix} \begin{bmatrix} dD_t^j \\ dK_t^{ji} \end{bmatrix} = \begin{bmatrix} -(K_t^{ij} dr + (\frac{\partial(\rho + \alpha, K_t^{ji})}{\partial \alpha} d\alpha \\ dP_t^k + D_t^j(\frac{\partial(\rho, K_t^{ji})}{\partial K_t^{ji}}) dK_t^{ij} - D_t^j(\frac{\partial^2(\rho + \alpha, K_t^{ji})}{\partial \alpha} d\alpha \end{bmatrix} \quad (2.47$$

Second order conditions are satisfied if:

$$(-\frac{\partial^2 C}{\partial D_t^{j2}}) < 0$$

$$D_t^j e < 0$$

and

$$\delta = (-\frac{\partial^2 C}{\partial D_t^{j2}}) D_t^j e - (\mu)^2 > 0 \quad (2.48)$$

Applying Crammer's rule;

$$dD_t^j = \frac{-(K_t^{ij} dr + (\frac{\partial(\rho + \alpha, K_t^{ji})}{\partial \alpha} d\alpha) D_t^j e - [dP_t^k + D_t^j(\frac{\partial(\rho, K_t^{ji})}{\partial K_t^{ji}}) dK_t^{ij} - D_t^j(\frac{\partial^2(\rho + \alpha}{\partial K_t^{ji} \partial}}{\delta}$$

(2.49)

If, $dK_t^{ij} = 0$, $d\alpha = 0$ and $dP_t^k = 0$, then;

$$\frac{dD_t^j}{dr} = \frac{-K_t^{ij}D_t^j(\epsilon)}{\delta} > 0 \qquad (2.50)$$

The higher the customer's return on investments the larger the amount of loans that banks are willing to grant him.

If $dK_t^{ij} = 0$, $dr = 0$ and $dP_t^k = 0$, then;

$$\frac{dP_t^j}{d\alpha} = \frac{-(\frac{\partial(\rho+\alpha\ ,\ K_t^{ji})}{\partial\alpha})D_t^j(\epsilon) - [D_t^j(\frac{\partial^2(\rho+\alpha\ ,\ K_t^{ji})}{\partial K_t^{ji}\partial\alpha})](\mu)}{\delta} \qquad (2.51)$$

The implication of equation (2.51) is that bankers lend more to customers in good financial standing.

If $dK_t^{ij} = 0$, $dr = 0$ and $d\alpha = 0$, then;

$$\frac{dD_t^j}{dP_t^k} = \frac{-\mu}{\delta} < 0 \qquad (2.52)$$

As the price of promotional activities increases, banks tend to reduce their loan portfolios.

If $dP_t^k = 0$, $dr = 0$ and $d\alpha = 0$, then;

$$\frac{dD_t^j}{dK_t^{ij}} = \frac{-\left[D_t^j\left(\frac{\partial(\rho\ ,\ K_t^{ji})}{\partial K_t^{ji}}\right)\right](\mu)}{\delta} > 0 \tag{2.53}$$

As social capital K_t^{ij} increases, the probability individual j will obtain a loan increases.

Similarly;

$$dK_t^{ji} = \frac{\left(-\frac{\partial^2 C}{\partial D_t^{j2}}\right)\left[dP_t^k + D_t^j\left(\frac{\partial(\rho\ ,\ K_t^{ji})}{\partial K_t^{ji}}\right)dK_t^{ij} + D_t^j\left(\frac{\partial^2(\rho+\alpha\ ,\ K_t^{ji})}{\partial K_t^{ji}\partial\alpha}\right)d\alpha\right]}{\delta} + \frac{(\mu)\left[K_t^{ij}dr + \left(\frac{\partial(\rho+\alpha\ ,\ K_t^{ji})}{\partial\alpha}\right)d\alpha\right]}{\delta} \tag{2.54}$$

If $dK_t^{ij} = 0$, $d\alpha = 0$ and $dP_t^k = 0$, then;

$$\frac{dK_t^{ji}}{dr} = \frac{\mu K_t^{ij}}{\delta} > 0 \tag{2.55}$$

Banks are interested in building social capital K_t^{ji} especially when the j^{th} customer has high returns on his investments.

If $dK_t^{ij} = 0$, $dr = 0$ and $dP_t^k = 0$, then;

$$\frac{dK_t^{ji}}{d\alpha} = \frac{(-\frac{\partial^2 C}{\partial D_t^{j2}})D_t^j(\frac{\partial^2(\rho+\alpha\ ,\ K_t^{ji})}{\partial K_t^{ji}\partial\alpha}) + \mu(\frac{\partial(\rho+\alpha\ ,\ K_t^{ji})}{\partial\alpha})}{\delta} > 0 \tag{2.56}$$

Banks are also interested in building social capital K_t^{ji} when the j^{th} customer is in good financial standing.

If $dK_t^{ij} = 0$, $dr = 0$ and $d\alpha = 0$, then;

$$\frac{dK_t^{ji}}{dP_t^k} = \frac{(-\frac{\partial^2 c}{\partial D_t^{j2}})}{\delta} < 0 \tag{2.57}$$

When the price of promotional activities increases, bankers tend to reduce their participation in promotional activities designed to build social capital.

If $dP_t^k = 0$, $dr = 0$ and $d\alpha = 0$, then;

$$\frac{\partial K_t^{ji}}{\partial K_t^{ij}} = \frac{(-\frac{\partial^2 C}{\partial D_t^{j2}})D_t^j(\frac{\partial(\rho\ ,\ K_t^{ji})}{\partial K_t^{ji}})}{\delta} < 0 \tag{2.58}$$

When social capital K_t^{ij} increases, individual i reduces efforts to increase social capital K_t^{ii}.

The above results generate the following hypothesis:

Hypothesis. In a credit institution, the probability of a lender i (bankers) approving a loan application from customer j will increase if there is a high level of social capital between lenders (the banker) and the potential borrower K_t^{ij} (See equation 2.53).

Hypothesis. Credit institutions (i) will engage in promotional activities designed to increase the social capital between it and customer (j), especially among customers with strong financial conditions (See equations: 2.14, 2.30, 2.42, and 2.56).

2.3 Summary

This chapter developed theoretical models based on utility functions that take into account the social capital between bankers and their customers. Three different utility functions were derived from a general utility function developed by Robison and Schmid.

In all cases, the models presume that high levels of social capital between lenders and potential borrowers result in an allocation of funds that favors customers having high levels of social capital with personnel working for their financial institution. In many cases, economic incentives such as lower transaction costs and association with socially close customers are increased by social capital.

CHAPTER 3

SURVEY METHODOLOGY

3.1 Introduction.

This chapter describes the survey methodology used in this study. A mail survey was used to collect data from the entire population of banks located in small urban centers across Michigan.

Initially the procedures followed in the pre-survey stage are discussed. First section 3.2 describes all the activities performed before the survey such as the questionnaire pre-test and personal contacts with bankers to discuss the scope of the research and to obtain their suggestions about the questionnaire.

In section 3.3 the characteristics of the bank population, types of banks targeted by the survey and the communities in which they are located are analyzed. Section 3.4 describes in detail the survey questionnaire. Partial and cumulative response rates obtained from each mail out are described in section 3.5.

Sampling errors are analyzed and standard error of the means are estimated in section 3.6. Sections 3.7 and 3.8 describe the characteristics of the survey participants and the characteristics of the non-respondents to the survey. This comparison is made so as to detect biases that may exist due to significant differences between the

characteristics of these two groups. Finally, the probability that an "average bank" participated in the survey is obtained using a logistic regression analysis.

3.2 The Pre-Survey Stage.

This section describes activities performed before the survey's first mail out. With these activities we intended to eliminate possible biases introduced in the different stages of the survey. Initially, individuals familiar with the banking industry were contacted. Two suggestions from these individuals were incorporated into the survey. One suggestion was to focus only on banks (i.e., do not include credit unions, savings and loan, and other types of financial institutions). Second, based on their suggestion, the survey should include only banks located in rural areas where relationships between bankers and customers are expected to be stronger.

An initial version of the questionnaire was mailed to a small number of banks. In some cases, personal visits to these bankers were arranged to discuss the scope of the project and to discuss the questionnaire.

Bankers were interested in the project. They recognized the importance that relationships with customers have on their business activities. These bankers identified two types of relationships, social and business that determine one's social capital.

Bankers differentiate these two types of relationships. Social relationships with their relatives, neighbors, people attending their churches, school fellows, and customers can help to attract new customers and to develop business relationships. They are extremely carefully in their financial transactions with individuals to whom they feel socially close (i.e., close relatives). They try to avoid any risk that can harm the prevailing levels of these relationships.

Business relationships are developed through a continuing and longstanding process of business practices. Customers who are continually doing business with a bank tend to establish a good business relationship with the institution. Customers with significant levels of business relationships with their banks could benefited with better terms in subsequent credit transactions.

On the other hand, bankers suggested that they are continually participating in community events to develop relationships. Some institutions strongly encourage their personnel to participate in social events where they can interact with potential and current customers.

According to bankers, tellers and officers that have direct contact with the public tend to develop strong relationships with their customers. Their main concern was that turnover in the bank's staff generally causes a deterioration in these relationships.

Bankers did not have major problems responding to the pre-test. Bankers provided specific comments about the questionnaire. All these comments were included in the final version of the questionnaire.

3.3. Characteristics of the Population.

The entire population of banks located in urban areas with populations not exceeding 10,000 people was used. The survey used a mailing list of banks based on data provided by the Michigan Department of Commerce (1989) and the Michigan Bankers Association (1990/1991). The mailing list contains the bank's name, complete address, and phone number. In addition, it contains the name of the executive directly in charge of the bank's credit operations.[7]

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[7] See Appendix for the complete mailing list.

Small cities were selected based on the assumption that; i) people living in these communities tend to develop strong ties among themselves, ii) primary relationships are commonly found in these communities,[8] iii) a large percentage of the bank's portfolio is oriented towards agricultural loans, and iv) customers place more trust in local or regional banks because families have been using the same bank for many generations.

The survey design was based on Dillman's Total Design Method (TDM). One hundred sixty four (164) national and state chartered banks were surveyed. The study anticipated a sampling error of less than 3 percent and a response rate of 70 percent.

3.4. The Questionnaire.

This study employed standard techniques in the preparation of questionnaires. (Dillman 1978, Fowler 1988). The questions in the survey were kept simple. Well specified categories were assigned to the different variables to avoid a lack of consistency in the responses of successive trials. A reliable instrument tells the same story from one measurement instance to the next. By contrast, an unreliable instrument has a large error component, and that makes the observed scores unreliable. The larger the error component in relation to the true score, the less reliable the instrument.

The questionnaire has 22 questions, divided into six parts.[9] The first part consists of 7 questions related to the use of formal scoring models in a credit evaluation process. The purposes for asking the first set of questions were: 1) to find if banks use scoring models and 2) to estimate the importance that bankers assign to commonly used ratios and variables for the evaluation of financial measures. Another purpose of the

[8] The characteristics of primary relationships were explained in chapter 1.

[9] The questionnaire can be found in appendix A.

first set of questions was to help respondents become acquainted with financial measures and ratios employed in the case study.

A second set of questions, consisting of questions 8 to 12, is used to evaluate the importance that bankers assign to resources used to improve their social capital with customers. The bankers' participation in social and community activities and advertising campaigns are specially designed to create and develop a bank's image as community and people oriented. The importance of these activities is examined in the second set of questions.

A third set of questions is used to evaluate the importance that bankers assign to social and business relationships. In addition, this set contained questions that ask bankers the importance of a social relationship in developing a business relationship. Questions Q16 to Q18 belong to this set.

The fourth set of questions, questions Q19 to Q21, evaluates how bankers use their relationships to attract new customers. Bankers attitudes in processing loan applications presented by their close relatives is an important issue to be covered in the fourth set of questions.

Questions in the fifth set are used to estimate the factors which determine a potential borrower's creditworthiness. Also, questions in this set are used to estimate factors that determine the development of social and business relationships. Questions Q13 to Q15 belong to this set of questions.

Finally, the sixth set contains a case study (question Q22). This case study asks bankers to evaluate a $50,000 loan application for the purchase of agricultural inputs presented by different customers. Each potential borrower has a different social and business relationship with the bank, as well as, a different financial status.

Factorial analysis was used to construct a table that contains five independent variables. All these variables are categorical, the ones related to financial measures - liquidity, profitability and managerial capabilities - display two levels (high and low), while the variables used as a proxy for the two types of relationships - social and business - display three different levels (e.g., good, average and poor). The factorial analysis provides 72 different cases (3x3x2x2x2), each case presents different levels of the five considered variables.

In this case study, bankers are asked to evaluate different cases that correspond to a similar number of loan applications and make the decision to approve or reject the loan application. In addition, if the application is approved respondents are required to price the loan indicating the level of interest rates that will be charged in the credit operation. A table containing 72 distinct cases was divided into four different versions. Each version contains 18 cases randomly selected from the table. This division is used to facilitate the response to the questionnaire by reducing the number of questions or cases each respondent must answer.

The sample was divided into four subsets. Each subset received a different version of the questionnaire. The original table will be reconstructed by merging the four different versions in the empirical analysis.

3.5 Response Rates.

An initial mail out and three follow ups mail outs were sent to participants following Dillman's TDM approach for mail surveys. The initial mailing contained a cover letter, the questionnaire, and a pre-paid return envelope. First Class mail was used for the first mail out[10].

A postcard was used for the first follow-up. It was mailed exactly two weeks after the first mail out. Certified mail was used for the second mail out. This package contained a cover letter, a questionnaire and a pre-paid return envelope. This second package was mailed two weeks after mailing the post card.

Graph 1 shows the response rates obtained with each mail out. It also shows the accumulated response rates with successive follow ups. Two weeks after beginning the survey, the response rate was 23 percent. According to Dillman a response rate between 19 to 27 percent can be expected from the first mail out.

The response rate with the postcard was 12 percent, given an accumulated response rate equal to 35 percent for the first two mail outs. Dillman anticipates an increment in the response rate ranging from 15 to 25 percent with the postcard.

Two weeks after mailing the second follow up the response rate obtained from the certified mail was equal to 20 percent. Thus, with the first three mail outs, an accumulated response rate of 55 percent was obtained.

Finally, phone calls were made to all banks that did not respond. These phone calls increased the response rate by 10 percent. With the phone calls, the total response

[10] Cover letters, cards, questionnaires can be seen Appendix A.

rate was 65 percent. Dillman's TDM approach expects a total response rate of 70 to 75 percent[11] .

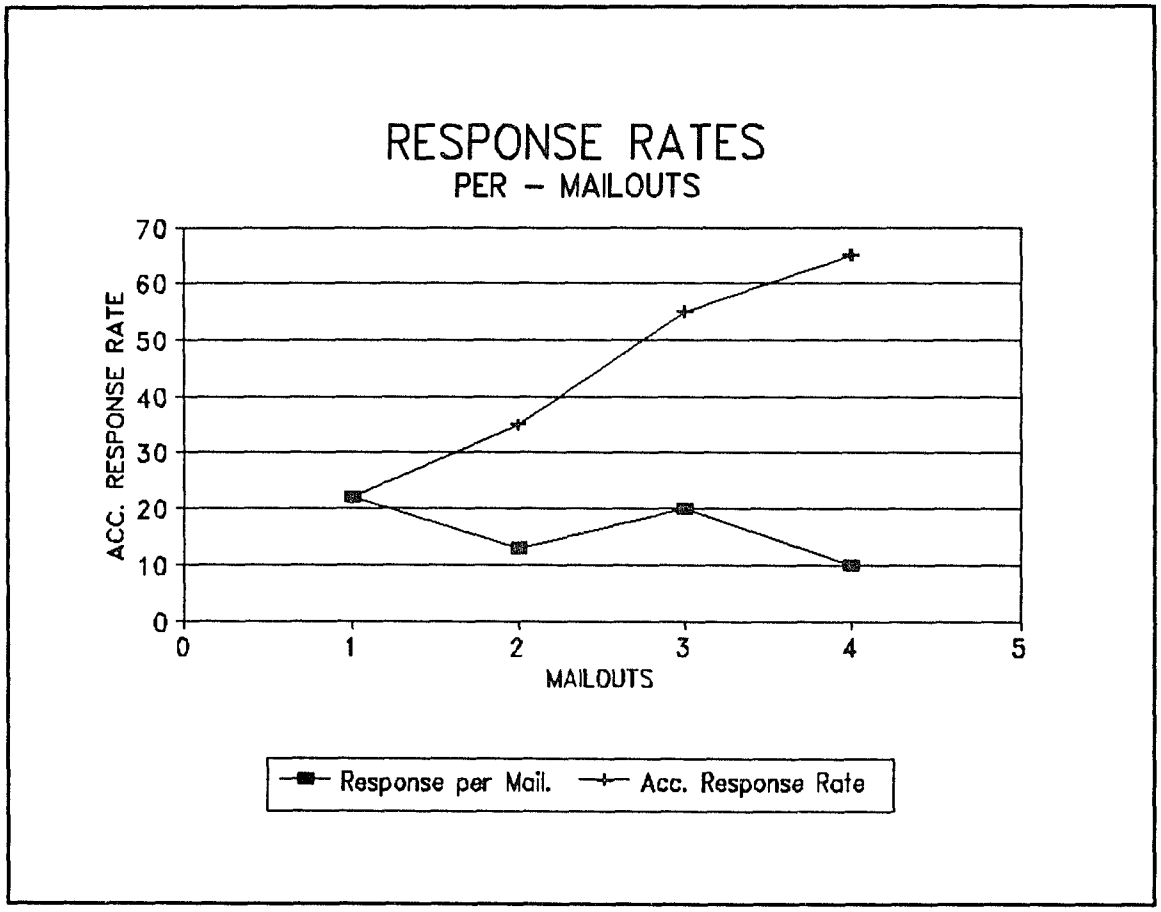

FIGURE 1 RESPONSE RATES PER MAILOUTS

[11] Note: The expected response rate is a function of several crucial variables; 1) length and complexity of the questionnaire, 2) perceived importance of survey, 3) target sample.

3.6. Sampling Error.

Sampling error in surveys can cause biased results. When probability procedures are used to select a sample, it is possible to calculate how much the sample estimates will vary by chance due to sampling.

Larger samples reduce the variance of what is being measured and cause the sample estimates to locate around the true population value. The variation around the true value is called sampling error.

The statistic most often used to describe sampling error is called the standard error of the mean[12]. The standard error of the mean measures the standard deviation of the distribution of sample mean estimates.

The most common kind of mean calculated from a sample survey is a proportion. A proportion is the percentage of a sample that has a certain characteristic or provides a certain response. This proportion is a mean of a two value distribution. It is calculated as the sum of the values, 1 for responses and 0 for non-responses, divided by the number of cases. The survey had 103 responses and 61 non-responses, thus, the mean equals to 0.63.

The calculation of standard errors of proportions is simplified because the variance of a proportion can be calculated readily as $p(1 - p)$, where p is the proportion of respondents providing a certain response and $(1 - p)$ is the proportion who do not respond. In this study p equals 63 percent and $(1 - p)$ equals 37 percent. Thus, the variance of the proportion for the survey is 0.233 and the standard error of this proportion is equal to 0.1 percent. Since two standard errors are required to estimate

[12] For details see "Survey Research Methods" Floyd J. Fowler, Jr. (1988).

the sampling error with a 95 percent confidence interval, the survey's sampling error is equal to 0.2 percent.

With a sampling error of 0.2 percent, one can be 95 percent confident that the true population figure lies two standard errors within the sample mean. Low sampling errors reduce the probability that biased results occur.

3.7. Characteristics of the Survey Participants.

Table 3.1 reports basic statistics of the survey's participants. It can be observed that the "average" bank in the sample is located in urban centers with populations of 3,800 people. The average bank also has 86.5 million dollars in total assets and capital of 1.0 million dollars. In addition, the average level of total deposits is above 77 million dollars with a portfolio of 53.5 million dollars. The average bank has around 5.0 million dollars in cash and its annual net income is around 0.5 million dollars.

Table 3.1 Basic Statistics for the Sample Banks-

VARIABLES	MEAN	STANDARD DEVIATION
POPULATION	3,789.37	2,700.93
BANK ASSETS	$86,504,802.--	$77,697,266.30
CASH	$4,867,861.30	$6,128,604.22
DEPOSITS	$77,348,230.--	$67,644,271.20
LOANS	$53,571,207.--	$53,951,813.90
CAPITAL	$1,098,810.40	$923,542.57
NET INCOME	$454,308.87	$516,140.83

The empirical estimates based upon mail survey data can be biased due to significant differences between respondents and non-respondents. To estimate these potential differences, the means of variables common to both subsets are statistically tested with a means difference analysis. It is hypothesized that each of the subsets (respondents and non-respondents) has special characteristics that makes the subset different from the other.

Phone calls to all banks that did not respond were made previous to the statistical analysis to be sure that all them received the questionnaire. During these phone calls, non-respondents were questioned to identify the possible reasons that could explain why they did not respond to the survey.

Among the reasons given by the participants for their non response, were the following; a) the person to whom the survey was directed had stopped working for the institution or was on vacation, b) some participants indicated a lack of time to answer the questionnaire, and c) one institution stated their unwillingness to participate was because the questionnaire contained too many "personal and confidential" questions.

Variables common to the two subsets were used to estimate possible differences between respondents and non-respondents. Variables such as: a) the population of the urban center where the bank is located, b) total bank assets, c) total bank deposits, d) total bank portfolio (loans), e) bank cash, f) bank capital, and g) bank net income, are included in the mean difference analysis. The banks data was obtained from the "Michigan Bankers Association - Blue Book."

Table 3.2 reports basic statistics related to all these variables. The variables means (except cash) are larger for the respondents. However, further analysis was

performed to test if the means are statistically different between the respondents and non-respondents.

Table 3.2 Basic Statistics for Respondents and Non-Respondents to the Survey

VARIABLES	STATISTICS	NON-RESPONDENTS	RESPONDENTS
POPULATION	MEAN	3,378.49	3,921.83
	STD.	2,909.33	2,838.03
BANK ASSETS	MEAN	$76,234,556.--	$92,457,845.--
	STD.	$75,965,102.--	$118,554,601.--
CASH	MEAN	$5,065,870.--	$4,772,433.30
	STD.	$7,818,557.--	$5,889,220.70
DEPOSITS	MEAN	$68,489,733.--	$82,549,958.--
	STD.	$69,114,648.--	$104,110,684.--
LOANS	MEAN	$45,367,658.--	$57,503,011.--
	STD.	$46,267,494.--	$80,136,941.50
CAPITAL	MEAN	$1,185,189.--	$1,740,404.80
	STD.	$1,063,698.--	$7,375,244,73
NET INCOME	MEAN	$395,054.--	$495,789.01
	STD.	$411,850.--	$591,516.12

A difference of means analysis is performed for each variable reported in table 3.2.[13] It is assumed that both subsets are normal (each has more than 30 elements), with different means μ_1 and μ_2 but identical variances σ^2. It is hypothesized that both subsets are not independent. In other words, the means for respondents and non-respondents are not significantly different.

[13] For more details see "An introduction to Statistical Methods and Data Analysis", Lyman Ott, 1988

Thus:

Null Hypothesis: H_o: $\mu_1 - \mu_2 = 0$

Alternative Hypothesis: H_a: $\mu_1 - \mu_2 \neq 0$

where;

μ_1 is the variable mean for non-respondents

u_2 is the variable mean for respondents

For all the variables presented in table 3.1, the null hypothesis is accepted, thus, there are no statistically significant differences between the means of the respondents and non-respondents. Based on this analysis it can be concluded that bias caused by differences between respondents and non-respondents was not a serious concern.

3.8 Characteristics of Non-Respondents.

A logit regression was used to estimate "special" characteristics that can be ascribed to non-respondents. Logistic regressions are used to estimate the probability of an event occurring. One important appeal of the logit model is that it transforms the problem of predicting probabilities within a (0,1) interval to the problem of predicting the odds of an event's occurring within the range of the entire real line.[14]

The dependent variable in the regression equation is simply the logarithm of the odds that a response will be made. For notation, Y equals 1 for respondents and Y equals 0 for non-respondents. All the variables in Table 3.1 are included as independent

[14] See "Econometric and Models: Economic Forecast", R. Pindyck and D. Rubinfeld, 1981.

variables. Because there is perfect correlation between the bank's level of total deposits with its level of total assets, multicollinearity is a problem. To avoid this problem, the bank's total assets (BANKASST) is dropped from the regression analysis.

The following result was obtained from the logit regression analysis:

$$Y_i = \underset{(0.390)}{0.161} + \underset{(0.458)}{4.077E\text{-}05\,POPULATN_i} - \underset{(2.181)}{1.298E\text{-}07\,CASH_i} + \underset{(1.326)}{2.743E\text{-}08\,DEPOSITS_i} \quad (3.1)$$

$$- \underset{(0.646)}{1.523E\text{-}08\,LOANS_i} - \underset{(2.156)}{6.004E\text{-}07\,CAPITAL_i} + \underset{(0.274)}{3.032E\text{-}07\,NETINCOM_i}$$

In this regression only two variables are significant at the 5 percent significant level CASH and CAPITAL. It is implied that banks with high levels of cash and capital are less likely to participate in the survey.

To estimate the probability that an "average" bank participated in the survey, the regression was evaluated at the mean value of the independent variables. The following value (δ) was obtained as a result of the sum of the products of each variable mean with the corresponding coefficient estimates in the regression.

$$\delta = 0.468$$

Replacing this value in the logistic probability function:

$$Prob = \frac{1}{1 + e^{-\delta}}$$

where e is the base of natural logarithms.

The following result is obtained:

$$Prob = \frac{1}{1 + e^{-0.468}} = 0.615 = 61.5\%$$

The last result shows that the probability that an "average" bank participates in the survey is 61.5 percent. In addition, banks with high levels of cash and capital have less than a 61.5 percent probability of participating in the survey. Finally, banks located in urban centers with populations larger than 3,700 people are more likely to participate in this survey.

3.9 Summary.

This chapter described the methodology used to collect survey data. One hundred sixty four (164) Michigan banks were surveyed. The survey obtained a response rate of 65 percent. The estimated sampling error is low and equal to 0.2 percent with a 95 percent confidence interval. In addition, no significant attribute differences were found between respondents and non-respondents.

A logit regression analysis found that banks with high levels of cash and equity were less likely to respond to the survey. A probability of 61.5 percent is estimated for an "average" bank to participate in the survey. Finally, banks located in urban centers with populations larger than 3,700 people are more likely to participate in the survey.

CHAPTER 4

SURVEY RESULTS

4.1. Introduction

The objective of this chapter is to summarize the survey results. Survey results indicate the importance that bankers assign to social and business relationships and how social and business relationships influence their credit decisions.

This chapter reports: 1) how bankers rate the importance of factors that determine the development of social and business relationships with their customers, 2) the factors which bankers consider influence the evaluation of a potential borrower's creditworthiness, 3) the importance that lending institutions assign to their advertising campaigns as a means of attracting new customers and of developing social capital, 4) the importance that bankers give to their personnel being involved in social and community activities, and 5) the frequency with which bankers patronize social, cultural and other activities designed to improve the bank's image within the community.

4.2. Summary of Survey Results.

4.2.1 Social Relationships.

The study found that bankers use their social relationships primarily to: 1) attract new customers, 2) improve their market share of total deposits and loans, 3) obtain information about firms and other customers, and 4) to develop longstanding business relationships.

Survey results show that more than 65 percent of the bankers surveyed consider important or very important their social relationships with customers and potential borrowers. This high percentage explains why most bankers are interested in participating in social and community events, as well as in other types of activities that facilitate the development of new relationships with potential customers as well as providing opportunities to improve their relationship with current customers (See table 4.1).

Table 4.1 Importance of Social Relationships Between Bankers and Their Customers

Question	
Please indicate the importance of a social relationship between you and your bank's customers with whom you currently do business	Percent of respondents
Not Important	34.7
Important	52.5
Very Important	12.9

It is expected that social relationships can be easily used to develop business relationships. Social relationships are used primarily to attract new customers which in

turn leads to a business relationship. To test this assertion, bankers were asked to indicate the importance that they assign to social relationships with their customers in developing business relationships.

Table 4.2 reports that more than 53 percent of the participants feel it is important to develop good social relationships to enhance their business relationships. Only eight percent of the respondents believed social relationships are very important to develop good business relationships with potential customers.

Table 4.2 Importance of a Social Relationship in Developing a Business Relationship

Question	
Please indicate the importance of a social relationship between you and your bank's customers in developing a business relationship	Percent of responses
Not Important	38.8
Important	53.4
Very Important	7.8

Next the survey asked what factors bankers use to develop social relationships. Question 13 contained several factors that were expected to affect the development of social relationships between bankers and their customers. Table 4.3 reports the bankers' ratings of the importance of these factors in developing a social relationship.

The factors can be categorized into three groups. The first category is composed of those factors which appear to represent the customer's behavior which bankers consider important. This category is composed of: a) customer's demonstrated honesty,

b) customer's willingness to cooperate, c) understanding the customer's rights and responsibilities, and d) the customer's involvement in community related programs.

Based on responses to question 13, it can be inferred that bankers are reluctant to develop social relationships with individuals who have a poor image within the community. In other words, social interaction between bankers and their customers is a necessary but not a sufficient condition to develop social relationships. Having a positive relationship with poor customers may lead them to ask for privileges the bank would not provide under ordinary circumstances.

The second category is composed of factors related to social activities and other types of social contacts in which bankers and their customers are periodically engaged. These include: a) belonging to the same club, b) attending the same church, c) residing in the same neighborhood, d) attended school together, and e) have children or family members that are friends.

The third category is composed of factors that can be considered exogenous to the process of social capital development. Bankers assign low importance to these factors, which include variables such as the customer's age and political preferences.

We can conclude that social interaction between bankers and their customers can be used in the development of social relationships. For this purpose, bankers also require from their customers to follow basic norms of behavior to develop longstanding social relationships.

Table 4.3 Factors that Determine the Development of a Social Relationship

Question Please indicate the importance of the following factors in developing a good social relationship between your bank's staff and customers	RATING*
Customer's demonstrated honesty	8.505
Customer's willingness to cooperate	7.275
Understanding the customer's rights and responsibilities	7.245
Involved in community related programs	6.466
Members of the same club	5.592
Attend the same church	4.835
The customer's office location	4.660
Live in the same neighborhood	4.272
Attended school together	4.194
Have children or family members that are friends	4.039
Near the same age	3.680
Similar political preferences	3.282

* Scale (1) Unimportant to (10) Very Important

4.2.2 Business Relationships

The state of the prevailing contacts between bankers and their customers within a business or professional setting is referred to as business relationships. Good business relationships can be helpful in reducing transaction costs between bankers and their customers. Transaction costs are lowered when a good business relationship exists because less information is required by bankers before the transaction.

All bankers participating in the survey consider business relationships with their customers important or very important. Table 4.4 reports that more than 63 percent of the participants feel that business relationships are very important.

Table 4.4 Importance of Business Relationships Between Bankers and Their Customers

Question	
Please indicate the importance of a business relationship between you and your bank's customers with whom you currently do business	Percent of respondents
Not Important	0.0
Important	36.9
Very Important	63.1

Business relationships are judged by bankers as being more important than social relationships. Based on the importance that bankers assign to their business relationships with customers, three categories of factors that describe business relationships were identified from the variables shown in 4.5.

The first category include variables that are related to the customer's behavior. The customer's demonstrated honesty got a mark equal to 8.777 within a scale that goes from 1 (unimportant) to 10 (very important). Bankers require that customers display good behavior in their business transactions and within the community in which they live before a good business relationship can be developed. The customer's behavior is the most important factor in establishing and developing social and business relationships.

The second category is composed of factors which bankers can control. These factors include: a) knowledge of the customer's business, and b) the bank staff's friendliness towards its customers. A banker's positive approach towards the customer is necessary to maintain a positive business relationship.

The third category is related to transactions between bankers and their customers. Factors in this category include: a) the amount of money deposited in the customer's bank accounts, b) the number of accounts that the customer has in the bank, c) the complexity of these transactions, and d) the frequency with which the customer visits the bank (See Table 4.5).

Table 4.5 Factors That Determine the Development of a Business Relationship

Question	
Indicate the importance of the following factors in developing a good business relationship between your bank's staff and customers	RATINGS
Customer's demonstrated honesty	8.777
Your understanding of your customer's business	8.641
The staff's friendliness attitude with the customers	8.379
The amount of money deposited in the customer's bank accounts	7.272
The number of accounts that the customer has in your bank	6.825
The complexity of the customer's transactions in your bank	5.767
The frequency with which the customer visits your bank	5.573

* Scale (1) Unimportant to (10) Very Important.

4.2.3 Resources Used in the Development of Social Capital

The study assumes that bankers can develop social capital by participating directly in activities with their customers. In general, bankers consider participation in social events and community related programs as very important. These social events can be carried out in social clubs, cultural events, sports competitions and others. The bankers' participation in community events includes participation in county fairs and supporting community activities, as well as youth programs among others in which they can develop social capital with their current or potential customers.

Table 4.6 reports that nearly all bankers consider their participation in these activities as being important or very important. Only 2 percent of the respondents consider these types of programs as not being important for the development of social capital.

Table 4.6 The Importance That Bankers Give to Their Personnel Being Involved in Social Activities and Community Related Programs

Question	
Indicate the importance that you and your institution give to bank personnel being involved in social activities and community related programs to make the necessary contacts to attract new customers.	Percent of Respondents
Not Important	1.9
Important	37.9
Very Important	60.2

Table 4.7 reports that more than 78 percent of bankers patronize social, cultural and other activities very often. Only, 10 percent of bankers participate in less frequently and none cited that they have never been involved in social and other activities.

Table 4.7 Frequency with which Bankers Patronize Social, Cultural and other Activities Aimed to Improve the Bank's Image and Reputation Within the Community Where it is Located

Question	
How often do you and your bank personnel patronize social, cultural, and other activities aimed to improve the bank's image and reputation within the community where it is located.	Percent of Respondents
Never	0.0
From Time to Time	11.7
Not too Often	9.7
Very Often	78.6

Another way bankers increase their prevailing levels of social capital with customers is through advertising. Initially it was assumed that advertising campaigns are employed by bankers primarily to attract new customers. Based on this assumption, the survey contains a question aimed at estimating the importance that bankers assign to their advertising campaigns as a means of attracting new customers.

Table 4.8 reports that advertising campaigns as a means of attracting new customers are considered important by 65 percent of the financial institutions participating in the survey. Only 27 percent of these institutions consider this type of public announcements as not being important. These results explain why most banks are

continually promoting their services and trying to create a positive image within the community.

Table 4.8 Importance That Lending Institutions Give to Advertising Campaigns in order to Attract New Customers

Question	
Please indicate the importance that your institution gives to an advertising campaign in order to attract new customers	Percent of Respondents
Not Important	27.2
Important	65.0
Very Important	7.8

Given the importance that bankers assign to advertising campaigns, this study was interested in identifying the main goals that banks have for advertising so the survey asked banks to evaluate five variables related to the goals that the institutions have in their advertising campaigns.

Table 4.9 highlights the fact that bankers use advertising campaigns to promote their image within the community as people and community oriented. Another goal of advertising is to inform people that the bank cares about them. These two goals explain why bankers spend resources on advertising campaigns oriented to induce customers feel socially closer to their primary financial institutions.

The usually stated objective of an advertising campaign, to promote services and products, bankers considered less important than the two former goals. In addition, bankers feel that the development of business and social relationships are not the most

important goals of their advertising campaigns. Bankers feel these two goals can be achieved quicker and usually at a lower cost through their participation in social and community events (See Table 4.9).

Table 4.9 The Goals of the Bank's Advertising Campaign

Question	
Please indicate the degree to which you agree or disagree with the following statements related to the goals of your bank's advertising campaign.	Rating*
Let people know that the bank supports community organized events	8.3
Let people know that the bank cares about them as people	8.2
Let people know about your services	8.1
Develop business relationships	7.4
Develop social relationships	4.9

* Scale (1) Unimportant to (10) Very Important

4.2.4 Relationships in the Creditworthiness' Evaluation

As reported in Table 4.10, the four most important factors that affect a potential borrower's creditworthiness are: a) the riskiness of the operation, b) the borrower's profitability, c) the borrower's experiences with the bank, and d) the borrower's liquidity. Relationships are important in this evaluation but less important than financial measures commonly used for this purpose. These results are related to the ranking of financial measures used to evaluate loan applications which are presented in the appendix.

Social and business relationships appear at the bottom of the table. This implies that bankers are extremely careful in using their social and business relationships to establish a potential borrower's creditworthiness.

Table 4.10 Factors That Determine a Potential Borrower's Creditworthiness

Question	
Please indicate the importance that you and your institution give to the following factors when determining a potential borrower's creditworthiness	RATINGS*
The riskiness of the borrower's loan request	8.784
The borrower's profitability	8.686
Past experience with bank	8.653
The borrower's liquidity	7.971
The loan's purpose	7.520
The borrower's managerial capabilities	7.510
The borrower's reputation in the community	7.343
Other accounts with your bank	7.147
The quality of business relationship	6.922
Amount of funds involved in different transactions	6.740
The quality of social relationships	4.148

* Scale (1) Unimportant to (10) Very Important

Results in Table 4.10 contradict the results of the data analysis presented in chapter 5. This contradiction results from the conservative approach with which bankers responded to the questionnaire. It appears that bankers were very careful in answering

questions in which both types of relationships are explicitly stated in order to avoid possible conflicts with prevailing fiscal and internal policies. Yet as will be shown in Chapter 5, social and business relationships do indeed affect the loan approval process in significant ways.

4.3 Summary.

The most important findings of this chapter are:

1) Bankers consider important and/or very important their social and business relationships with their customers, though more importance is given to business relationships. However, social relationships are considered important in developing business relationships.

2) Bank executives encourage their personnel to become involved in social and community activities because it allows them to develop relationships with potential customers and improve the bank's prevailing relationships with current customers.

3) Bankers ratings concerning the importance of certain factors in developing a social relationship show three clearly defined categories.[15] The first category include factors related to the customer's behavior, such as the customer's honesty, the customer's willingness to cooperate, and the customer's involvement in community related programs.

The second category include factors that are related to the bankers and customers inter-relation in social activities. These activities include: same club membership, same church attendance, same neighborhood residence, attended school together and have children or family members that are friends.

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[15] See Table 4.3.

The third category includes factors considered exogenous to the development of social relationships. These factors include age and political preferences which are generally found to be unimportant.

4) Another rating shows the importance of factors in developing a business relationship.[16] This rating also consists of three categories. The first category is related to the customer's behavior in the different transactions with the bank. It includes variables such as the customer's honesty and bank personnel understanding of the customer's business.

The second category is related to the bank's personnel behavior while doing businesses with the customers. This category includes variables such as knowledge of the customer's business activities and the bank's staff attitude towards its customers.

The third category relates to the business transaction processes involving bankers and their customers. This category includes variables such as the amount of money deposited in the customer's bank accounts, the number of accounts that the customer has in the bank, the complexity of these transactions, and how frequently the customer visits the bank.

5) Social interactions and business transactions are necessary but not sufficient conditions for the development of social and business relationships. Bankers require from their customers basic norms of behavior in social and business settings as well as other exogenous factors used to develop longstanding social and business relationships.

6) The bankers rating of the factors that determine a potential borrower's creditworthiness assign the highest marks to financial measures commonly used in credit

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[16] See Table 4.5.

evaluation procedures, such as, the riskiness of the loan request, the borrower's profitability and liquidity, and the borrower's past credit experience with the bank.

The two types of relationships - social and business - analyzed in this study appear at the bottom of the bankers rating of the factors that determine a potential borrower's creditworthiness highlighting a contradiction with the results of the data analysis presented in chapter 5. This contradiction is partially explained by the low marks that bankers assign to social and business relationships in a credit evaluation process. In a credit evaluation process bankers are more concern with the applicant's financial measures.

7) The bank's personnel interaction with customers in social activities is an important resource that bankers use to develop social capital with their customers. The development of social capital is necessary to reduce the perceived social distance between bankers and their customers.

8) Advertising campaigns are used primarily to promote the bank's image within the community.

CHAPTER 5

HYPOTHESIS TESTING

5.1. Introduction

This chapter presents the results of the empirical analysis used to support the conceptual propositions and the main hypothesis developed in chapter 2. The analysis utilizes two statistical techniques; factor analysis and logistic regression. Factor analysis is used to identify the common factors that explain the development of social and business relationships, as well as, the common factors that explain a potential borrower's creditworthiness. Logistic regression is used to estimate the probability lenders will approve a loan application presented by a customer who displays specific levels of liquidity, profitability and managerial capability as well as the two types of relationships (social and business) which are considered in this study as the components of social capital.

5.2. Factor Analysis.

Factor analysis is that branch of multivariate analysis which deals with the internal structure of matrices of covariances and correlations. The aim in factor analysis

is explain the matrix of covariances by a minimum or at least a small number of hypothetical variates or "factors" (Lawley and Maxwell 1963).

In factor analysis, the basic assumption is that.

$$x_i = \sum_{r=1}^{k} l_{ir} f_r + e_i \quad (i = 1,2,...,p) \tag{5.1}$$

where;

x_i are the observed variates

f_r is the rth common factor

k is specified

e_i is a residual representing sources of variation affecting only the variate x_i (unique factor).

The p random variates e_i are supposed to be independent of one another and also to be independent of the k factors f_r. It is assumed that the variance of each f_r to be unity. The variance of e_i is denoted by v_i. All the means are supposed to be zero.

The coefficient l_{ir} is usually termed either the loading of the rth factor in the ith variate or the loading of the ith variate on the rth factor. The quantities l_{ir}, and usually also the v_i, are taken to be unknown parameters to be estimated.

Since a goal of factor analysis is to obtain a set of common factors that help to explain these correlations, the variables must be related to each other for the factor

model to be appropriate. The unique factors should be uncorrelated with each other and the common factors. If the correlations between variables are small, it is unlikely that they share common factors. It is possible that all variables contribute to a specific factor. However, usually only a subset of variables characterizes that factor, as suggested by their large coefficients.

The factors are inferred from the observed variables and can be estimated as linear combinations of them. While it is possible that all variables contribute to the x_i factor, it is assumed that only a subset of variables characterizes x_i, as indicated by their large coefficients.

Factor analysis usually proceeds in four steps (Norusis 1990). First, the correlation matrix for all variables is computed. Variables that do not appear to be related to other variables can be identified from the matrix and associated statistics. The appropriateness of the factor model can also be evaluated.

In the second step, factor extraction, the number of factors necessary to represent the data and the method of calculating them, must be determined. At this step it is possible to ascertain how well the chosen model fits the data.

The third step, rotation, focuses on transforming the factors to make them more meaningful. In situations in which a single factor (k=1) is sufficient to account for the correlation between the variates, the loadings are uniquely determined. But when k > 1 neither the factors nor their loadings are defined uniquely, for in equation 5.1 the factors f_r may be replaced by any orthogonal transformation of them, with a corresponding transformation of the loadings. Because of this transformation, it is necessary to rotate the factors obtained in any particular investigation so that variates of a given type which

measure some easily recognizable aspect of behavior or performance may have as high loadings as possible on one factor, which is then appropriately labelled, and zero or near zero loadings on other factors in the analysis.

At the fourth step, scores for each factor can be computed for each case. Since a factor can be estimated as a linear combination of the original variables, that is, for case k, the score of the jth factor is estimated as:

$$\hat{F}_{jk} = \sum_{i=1}^{p} W_{ji} X_{ik} \qquad (5.2)$$

where;

X_{ik} is the standardized value of the ith variable for case k

W_{ji} is the factor score coefficient for the jth factor and the ith variable

In this study, factor analysis is used to extract common factors that explain; a) the creditworthiness of a potential borrower, b) the development of social relationships, and c) the development of business relationships. This analysis will be performed using the variables presented in questions Q13, Q14, and Q15.

5.2.1. Factors that explain the development of social relationships.

The analysis begins by identifying common factors that explain the development of social relationships between bankers and their customers. Three common factors were extracted which jointly explain 73.1 percent of the variance among the variables presented in question 13.

Table 5.1 reports the eigenvalue, the percentage of variance explained by each of the three common factors, and the cumulative percentage of the variance. The "eigenvalue" represents the total variance of each of the common factors. The third column in Table 5.1 contains the percentage of the total variance attributable to each factor. The last column, the cumulative percentage, indicates the percentage of variance attributable to the common factor and those that precede it in the table.

Table 5.1 Common Factors That Determine the Development of Social Relationships

FACTOR	EIGENVALUE	PERCENTAGE OF VARIANCE	CUMULATIVE PERCENTAGE
1	5.148	46.8	46.8
2	1.675	15.2	62.0
3	1.214	11.0	73.1

Once the common factors that explain the development of social relationships are defined, it is then necessary to evaluate the components of these factors in order to identify them. The common factors are represented by a group of variables that have large loadings for that common factor. Table 5.2 reports the variables that compose the three common factors.

Table 5.2 The Components of the Common Factors That Explain Social Relationships

FACTOR	COMPONENTS	LOADINGS
1	Have children or family members that are friends	.866
	Attended school together	.863
	Live in the same neighborhood	.862
	Near the same age	.850
	Attend the same church	.830
	Similar political preferences	.794
	Members of the same club	.741
2	Customer's demonstrated honesty	.852
	Customer's willingness to cooperate	.742
3	Understanding the customer's rights & responsibilities	.691
	Involved in community related programs	.600

Based on the variables that make-up the three common factors, the factors can be defined as: Factor 1) Social activities (SOC), Factor 2) The customer's behavior (BHV) and Factor 3) The banker's sensitivity (SVT). An important observation is related to the similarity of results obtained from factor analysis to the ranking of the variables that determine the development of social relationships presented in chapter 4. In both cases the groups or categories identified are highly related among them. Another observation is that based on the results of factor analysis, customer's office location variable was dropped from Table 5.2 due to its small factor loading.

Thus, the development of social relationships can be expressed as:

$$Y_i = \alpha_1 SOC + \alpha_2 BHV + \alpha_3 SVT + U_{Y_i} \qquad (5.3)$$

where;

Y_i is the development of social relationships.

U_{Y_i} is the unique factor related to the development of social relationships.

α_1, α_2, α_3, are the factor score coefficients.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy for equation 5.4 is equal to 0.825.

The KMO measure of sampling adequacy is an index for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. It is computed as:

$$KMO = \frac{\sum_{i \neq j} \sum_{i \neq j} r_{ij}^2}{\sum_{i \neq j} \sum_{i \neq j} r_{ij}^2 + \sum_{i \neq j} \sum_{i \neq j} a_{ij}^2} \qquad (5.4)$$

where;

r_{ij} is the simple correlation between variables i and j.

a_{ij} is the partial correlation coefficient between variables i and j.

If the sum of the squared partial correlation coefficients between all pairs of variables is small when compared to the sum of the squared correlation coefficients, the KMO measure is close to 1. Small values for the KMO measure indicate that a factor analysis of the variable may not be a good idea, since correlations between pairs of variables cannot be explained by the other variables. Kaiser (1974) characterizes

measures in the 0.90's as marvelous, in the 0.80's as meritorious, in the 70's as middling, in the 0.60's as mediocre, in the 0.50's as miserable, and below 0.50's as unacceptable.

A KMO = .825 estimated in the analysis is considered high. Based on this figure it can be implied that the analysis provides statistical significant results.

5.2.2 Factors that explain the development of business relationships.

Factor analysis extracted two common factors that jointly explain 62.4 percent of the variance among the variables that the study assumes affect the development of business relationships. Question 14 in the questionnaire contained these variables. Table 5.3 reports the basic statistics of these common factors. The total variance of factor 1 is equal to 2.39 while for factor 2 it is 1.353.

Table 5.3 Common Factors That Determine The Development of a Business Relationship

FACTORS	EIGENVALUE	PERCENTAGE OF VARIANCE	CUMULATIVE PERCENTAGE
1	2.390	39.8	39.8%
2	1.353	22.6	62.4%

It should be noted that the variable, the amount of money deposited in the customer's bank account, was dropped from the analysis because of its low communality. The proportion of variance explained by the common factors is called the communality of the variable. Table 5.4 reports the components of the two common factors.

Table 5.4 The Components of the Common Factors That Determine a Business Relationship

FACTOR	COMPONENTS	LOADINGS
1	The frequency with which the customer visit your bank	.745
	The complexity of the customer's transactions in your bank	.739
	The number of accounts that the customer has in your bank	.638
	Customer's demonstrated honesty	.572
2	The staff's friendliness attitude with the customers	.535
	Your understanding of your customer's business	.534

These components are used to define the two common factors. The first factor is related to the Transactions (TRN) performed between bankers and their customers. The second factor is defined as the Sensitivity (SVT) factor. Thus, in order to develop a good business relationship bankers should have business contacts with their customers on a regular basis and bankers should be aware and have knowledge of the customer's business activities.

Similar to the previous factor analysis of social relationships, there is a strong correlation between the results obtained from factor analysis with the ranking of factors affecting the development of business relationships as described in chapter 4. For both factor analysis and the ranking scheme, financial transactions between bankers and their customers, the customer's behavior and a the bankers' sensitivity play an important role in the development of business relationships.

The following general expression relates the development of business relationships to the two common factors.

$$Y_i = \alpha_1 TRN + \alpha_2 SVT + U_{Y_i} \quad (5.5)$$

where:

Y_i are business relationships.

The Kaiser-Meyer-Olkin Measure of Sampling adequacy is equal to 0.648 considered between mediocre and middling in the Kaiser characterization. This low level can be explained in part due to the low number of variables presented to the respondents in the questionnaire (Q14).

The theoretical model developed in this study assumes that social capital is a function of social and business relationships. Based on the two general expressions obtained through factor analysis it can be stated that bankers require for the development of social capital with their customers the following: a) social activities (SOC), b) the customer's behavior (BHV), c) business transactions (TRN) and d) the banker's sensitivity (SVT).

A function that represents the activities necessary to develop social capital can be stated as:

$$SC_i = f(SOC, TRN, BHV, SVT, U_{SC_i}) \quad (5.6)$$

where:

SC_i is social capital.

5.2.3 Factors that Determine a Potential Borrower's Creditworthiness.

Factor analysis extracted four common factors that are supposed to affect the evaluation of a potential borrower's creditworthiness. These four factors capture 69.8 percent of the total variance.

(5.5)

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The four common factors and their basic statistics are presented in Table 5.5 The first factor explains 3.008 of the proportion of the total variance which represents more than 30 percent of this variance, while, the fourth factor explains only 1.011 of the proportion of the total variance representing only 10.1 percent of this variance.

Table 5.5 Common Factors That Determine a Potential Borrower Creditworthiness

FACTOR	EIGENVALUE	PCT OF VARIANCE	CUMULATIVE PERCENTAGE
1	3.008	30.1	30.1
2	1.805	18.0	48.1
3	1.158	11.6	59.7
4	1.011	10.1	69.8

Table 5.6 reports the components of the three common factors extracted by factor analysis. Notice that the variable, purpose of the loan, has been dropped from the analysis because its correlation (communality) with the four factors extracted is very low.

Table 5.6 The Components of the Common Factors That Explain Creditworthiness

FACTORS	COMPONENTS	LOADINGS
1	Other accounts with your bank	.834
	Past experience with bank	.772
	The quality of business relationship	.722
2	Amount of funds involved in transactions	.782
	The riskiness of the borrower's request	.765
	The borrower's liquidity	.714
3	The borrower's reputation in the community	.784
	The borrower's managerial capabilities	.735
	The borrower's profitability	.586
4	The quality of social relationship	.848

Based on the three variables that make up factor 1, this first factor can be described as the potential borrower's business relationships (BBR) with the bank. The second factor is related to the borrower's financial condition (BFC). The third factor describes the borrower's personal status (BPS) , and the last factor is related to the borrower's social relationships (BSR) with the bank's personnel.

In general, each of the variables considered above can be expressed as a function of the common factors according to the following mathematical function.

$$Y_i = \alpha_1 BBR + \alpha_2 BFC + \alpha_3 BPS + \alpha_4 BSR + U_{Y_i} \qquad (5.7)$$

where:

Y_i represents a customer's creditworthiness.

The Kaiser-Meyer-Olkin measure of sampling adequacy = .720. This value is considered as middling using Kaiser's characterization for KMOs.

Notice that social capital between bankers and their customers through its two components -social and business relationships- affect the evaluation of a potential borrower's creditworthiness. This last result supports the theoretical prepositions stated in chapter 2.

5.3 Case Studies.

Case studies were included in the survey to permit the estimation of the role that social and business relationships play in credit approval and loan pricing processes. The survey consisted of 72 hypothetical loan applications.

In the 72 loan applications, we considered three possible levels of social relationships and three possible levels of business relationships (sympathy, indifference, antipathy). There were also two possible levels of liquidity, profitability and managerial capabilities. Liquidity and profitability were chosen since they are commonly used in a potential borrower's creditworthiness evaluation. The variable managerial capabilities was included because it tries to capture the bankers' perception about how the applicant manages his business. The result of all possible combinations (3x3x2x2x2), was the 72 loan applications presented in the survey to the participant bankers.

The survey divided the 72 loan applications into four versions to facilitate the banks response to the survey. Each of these versions contains 18 different cases randomly selected from the original set of cases because we believed asking survey respondents to answer all 72 hypothetical loan applications would reduce significantly the number of responses returned. The following cases were presented in one of 4 versions in the survey's questionnaire.

Q22. Suppose you are evaluating a loan application for $50,000. Assume the purpose of the loan is to purchase agricultural inputs such as fertilizers, seeds, and chemicals or other similar working capital items that will be used in the next cropping season. After reviewing the borrower's characteristics described by the 18 different loan cases presented in the accompanying table, please indicate the likelihood of your institution granting the applicant's loan request by checking the appropriate decision **for each case**.

Please indicate your response to the loan application by checking YES for the approval of the credit operation and NO for not approving it. At the same time considering a Prime Rate of 10%, please indicate the interest rate that your institution will charge in the credit transaction.

LOAN APPLICATIONS

CASES	APPLICANT CHARACTERISTICS					YOUR DECISION	INTEREST RATE
	QUALITY OF SOCIAL RELATIONSHIP (see Q14)	QUALITY OF BUSINESS RELATIONSHIP (see Q15)	LIQUIDITY (see Q4)	PROFITABILITY (see Q5)	MANAGERIAL CAPABILITY (see Q7)	Please check YES for loan approval and NO for rejection YES NO	If YES, level of interest rate charged in the credit transaction [%]
1	Neutral	Average	High	High	Low	[ ] [ ]	[ ]
2	Neutral	Good	Low	High	Low	[ ] [ ]	[ ]
3	Negative	Good	Low	High	Low	[ ] [ ]	[ ]
4	Negative	Good	High	Low	Low	[ ] [ ]	[ ]
5	Positive	Good	High	Low	High	[ ] [ ]	[ ]
6	Neutral	Average	Low	High	Low	[ ] [ ]	[ ]
7	Neutral	Average	Low	Low	High	[ ] [ ]	[ ]
8	Neutral	Average	High	High	High	[ ] [ ]	[ ]
9	Positive	Average	High	High	High	[ ] [ ]	[ ]
10	Neutral	Poor	High	Low	High	[ ] [ ]	[ ]
11	Positive	Good	High	High	Low	[ ] [ ]	[ ]
12	Positive	Good	High	High	High	[ ] [ ]	[ ]
13	Neutral	Poor	High	Low	Low	[ ] [ ]	[ ]
14	Negative	Average	High	Low	Low	[ ] [ ]	[ ]
15	Negative	Poor	High	Low	Low	[ ] [ ]	[ ]
16	Positive	Poor	Low	High	Low	[ ] [ ]	[ ]
17	Negative	Average	Low	High	High	[ ] [ ]	[ ]
18	Neutral	Poor	High	High	High	[ ] [ ]	[ ]

5.3.1. The Loan's Approval Decision.

Logistic regressions were used to estimate the role that social capital between lenders and potential borrowers play in the loan approval process. Binary dependent variables (0,1 variables) are used in logit regressions. In these regressions the dependent variable is a nonlinear function of the explanatory variables.

The logistic probability function considers an S-shaped curve bounded in the interval (0,1) such that $E(Y_i) \rightarrow 0$ when $X_i \rightarrow -\infty$ and $E(Y_i) \rightarrow 1$ when $X_i \rightarrow +\infty$. This curve is the logistic curve that corresponds to the logit model. The model specification is.

$$E(Y_i) = \frac{1}{1 + e^{-\alpha - \beta X_i}} \tag{5.8}$$

or

$$E(Y_i) = \frac{e^{\alpha + \beta X_i}}{1 + e^{\alpha + \beta X_i}} \tag{5.9}$$

where; $E(Y_i) = P(Y_i = 1)$. Denoting $E(Y_i) = \pi_i$ and solving for $(\alpha + \beta X_i)$, results in.

$$\ln \frac{\pi_i}{1 - \pi_i} = \alpha + \beta X_i \tag{5.10}$$

Note that $\pi_i / (1 - \pi_i)$ is the ratio of the odds of $Y_i = 1$ against $Y_i = 0$.[17]

[17]For more details, see "Elements of Econometrics", Jan Kmenta, 1986.

This study estimates the decision to approve (Y_i = 1) or reject (Y_i = 0) a loan application as a function of social and business relationships, liquidity, profitability and managerial capabilities. Business and social relationships are evaluated at three different levels: negative, neutral and positive for social relationships and poor, average, and good for business relationships. Negative and poor relationships denote antipathy while positive and good relationships denote sympathy that a banker feels toward a customer.

The three financial measures, liquidity, profitability and managerial capabilities, are evaluated at two levels, high and low. High levels are related to an excellent financial status of the applicant. Low levels denote that the applicant has financial problems.

The empirical model estimated with the data from the bank survey has the following specification:

$$Y_i = \beta_o + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + e_i$$

where:

Y_i is the decision to approve or reject a loan application presented to the bank.

X_{1i} is the potential borrower's liquidity at the moment the loan application is presented.

X_{2i} is the potential borrower's profitability level when applying for a loan.

X_{3i} is the potential borrower's managerial capabilities.

X_{4i} is the loan officer's perceived level of social relationships towards the potential borrower.

X_{5i} is the banks business relationship with the potential borrower.

e_i is the error term.

Based on the theoretical relationships developed in chapter 2, the following are the expected signs for the estimated β coefficients.

$\beta_1 > 0$ High liquidity levels, which are associated with the capacity of a person or a firm to fulfill financial obligations in the short run, increases the probability of a loan being granted.

$\beta_2 > 0$ Firms with high profitability levels have higher probabilities of obtaining a loan than firms with low profitability levels.

$\beta_3 > 0$ Banks perceive that good managerial practices facilitate the repayment of any credit transactions. Thus there is a positive correlation between managerial capabilities and the probability of obtaining a loan.

$\beta_4 > 0$ Positive levels of social relationships between the bank's staff and potential borrowers improve the probabilities of obtaining a loan.

$\beta_5 > 0$ Good business relationships between a bank and a customer increase the probability that loan applications presented by their customer being approved.

Other variables -POPULATN, DEPOSITS, LOANS, and BANKASST- are included as independent variables in the analysis. The variable POPULATN is a proxy for the urban center's population in which the bank is located. DEPOSITS is related to the bank's total level of deposits at the moment the loan application is considered. LOANS represent the total amount of loans that the bank has in its portfolio. BANKASST is the level of the bank's total assets. The data on these variables was obtained from the Michigan Bankers Association Blue Book.

Each banker provided responses for 18 different loan applicants; thus, the observed loan decision is likely to exhibit some degree of correlation across the loan decisions made by a particular banker. Therefore, it is inappropriate to estimate the variances as if the sample were a simple random sample of loan applicant characteristics. The estimate of the β vector was constructed by minimizing the likelihood function associated with the empirical model. Because of the possible correlation across loan decisions made by a given banker, the usual estimator of the inverse of the information matrix is not appropriate as an estimator of the variance of the approximate distribution of the estimator. Instead, an approximation to the covariance matrix is constructed on the basis of a first-order Taylor expansion of the estimator. The log likelihood algorithm in PC CARP developed by Fuller et al. was used to estimate these parameters. The variance estimator in that program takes the sample design into account in computing the variances using the Taylor method. The sample design must also be accounted for in the degrees of freedom. The effective degrees of freedom for the estimated variances are the number of clusters, i.e. the number of bankers.

Table 5.7 reports the results of seven logistic regression estimated in the analysis.

Table 5.7 Logistic Regressions to Estimate the Decision to Approve a Loan Application

VARIABLES	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)
CONSTANT	-3.382 (10.86)	-3.705 (10.44)	-3.507 (10.56)	-3.710 (10.51)	-3.512 (10.61)	-3.707 (10.45)	-3.510 (10.57)
QSR1	-0.317 (2.31)	-0.321 (2.22)	-0.314 (2.26)	-0.320 (2.22)	-0.314 (2.26)	-0.321 (2.22)	-0.314 (2.26)
QSR3	0.383 (2.49)	0.383 (2.39)	0.388 (2.51)	0.385 (2.41)	0.391 (2.52)	0.383 (2.39)	0.389 (2.51)
QBR1	-1.478 (7.42)	-1.498 (7.33)	-1.486 (7.39)	-1.499 (7.32)	-1.487 (7.38)	-1.498 (7.33)	-1.486 (7.39)
QBR3	0.423 (3.05)	0.413 (2.86)	0.420 (3.01)	0.413 (2.86)	0.420 (3.01)	0.413 (2.86)	0.421 (3.02)
LIQ	2.050 (10.67)	2.069 (10.58)	2.057 (10.61)	2.070 (10.57)	2.059 (10.59)	2.069 (10.58)	2.057 (10.61)
PRO	2.999 (11.22)	3.019 (11.20)	3.009 (11.13)	3.021 (11.18)	3.011 (11.11)	3.020 (11.20)	3.010 (11.13)
MC	2.266 (9.96)	2.289 (9.80)	2.277 (9.87)	2.292 (9.80)	2.280 (9.87)	2.290 (9.80)	2.277 (9.87)
POPULATN		5.675E-02 (0.99)		5.560E-02 (0.97)		5.648E-02 (0.99)	
DEPOSITS		9.696E-04 (1.41)	1.360E-03 (2.17)				
BANKASST						8.916E-03 (1.51)	1.228E-02 (2.28)
LOANS				1.496E-03 (1.71)	1.971E- 03 (2.41)		
F-Statistic	24.804	20.079	21.467	20.000	21.386	20.066	21.469

where:

QSR1 is the Quality of Social Relationship - Negative.[18]

QSR3 is the Quality of Social Relationship - Positive.

QBR1 is the Quality of Business Relationship - Poor.

QBR3 is the Quality of Business Relationship - Good.

LIQ is the applicant's liquidity.

PRO is the applicant's profitability.

MC is the applicant managerial capability.

POPULATN is the population of the urban center where the bank is located (1/1000).

DEPOSITS is the level of total deposits in the bank (1/1000000).

BANKASST is the level of the bank's total assets (1/10000000).

LOANS is the bank's total loans portfolio (1/1000000).

The computed F-statistic indicates the estimated models are jointly significant at the 1 percent probability level. The intercept term accounts for average levels of social and business relationships and low levels of liquidity, profitability, and managerial capabilities.

Regression (3) was selected from Table 5.7 to estimate the effect of the different variables on the probability that a loan application is approved.

[18] Refer to relationships between lenders and potential borrowers.

$$Y_i = \underset{(10.56)}{-3.507} - \underset{(2.26)}{0.314}SL_i + \underset{(2.51)}{0.388}SH_i - \underset{(7.39)}{1.486}BL_i + \underset{(3.01)}{0.420}BH_i$$

$$+ \underset{(10.61)}{2.057}LIQ_i + \underset{(11.13)}{3.009}PRO_i + \underset{(9.87)}{2.277}MC_i + \underset{(2.17)}{0.0014}DEP_i \qquad (5.11)$$

Note: All parameters estimated are significant at the 5 percent probability level.

The coefficients for SL_i and BH_i were both negative, while the coefficients for SH_i and BH_i were both positive. Thus, a decrease in the quality of social or business relationship between the banker and the borrower reduces the probability of loan approval. Likewise an increase in the quality of social or business relationship increases the likelihood of loan approval. These results support the hypothesis that relationships have an impact on the likelihood of loan approval.

The coefficients for LIQ_i, PRO_i, and MC_i were all positive as expected. Higher levels of liquidity, profitability, and/or managerial capabilities tend to increase the chances of loan approval. The variable DEP_i was included to account for potential impacts that bank size might have on loan approval. The coefficient estimate was positive suggesting that as bank size increases, the probability of receiving a loan increases.

Because of the nonlinearity of the logit model, estimated coefficients don't have the usual marginal effects interpretation of a linear regression model. Table 5.8 shows the probability of loan approval given by equation (5.11) for different combinations of financial measures and relationships characteristics. The level of deposits was set at the

average for the respondent bank $82,549,958. Columns (1) to (3) describe various combinations of financial measures of potential borrowers. Column (4) shows the probability of loan approval given the levels of financial measures presented in columns (1) to (3) and average social and business relationships denoted *SA* and *BA*, respectively. The probability of loan approval ranges from 3 percent for low levels of liquidity, profitability, and management capacity to 98 percent for high levels for each of the business characteristics given average quality of relationships. When one of the business characteristics is high, the probability of loan approval ranges from 21 percent to 41 percent. When two of the business characteristics are high, chances of loan approval range from 72 to 87 percent. Of the three business characteristics considered, profitability has the strongest impact on the ability of a borrower to obtain a loan. There is a strong relationship between the level of business characteristics and the likelihood of loan approval.

Columns (5) to (10) show the probability of loan approval when different levels of business and social relationships are considered in addition to the business characteristics of potential borrowers described in columns (1) to (3). Relationships have their largest absolute impacts in those cases where only one or two business characteristics are at high levels. For example, when profitability is high but liquidity and management capacity are low, the quality of social and business relationships can cause the probability of loan approval to range from as low as 10 percent with low quality of social and business relationships (*SL* and *BL*) to as much as 61 percent with high quality of social and business relationships (*SH* and *BH*). In cases where business characteristics are all high or all low, the magnitude of changes in the loan approval probabilities is smaller. The general pattern is that relationships matter most in those

cases where the loan approval decision based on business characteristics is unclear. In these cases, relationships appear to be deciding factor in the loan approval decision.

The relationship variable with the largest impact on loan approval is low quality of business relationship, *BL*. Low quality business relationship has a relatively large negative impact on the likelihood of receiving a loan. The reduction in the chance of loan approval are much smaller for a low quality of social relationship, suggesting that low quality of business relationship is a strong factor in rejecting loan applications. Interestingly, high quality social and business relationship have nearly the same level of impact on the probability of loan approval.

Table 5.8 **Probabilities of a Borrower Receiving a Loan Based on Business Characteristics and Personal and Business Relationships with Bank Officials.**

Business Characteristics of Borrowers			Probability of Loan Approval for different levels of Business and Social Relationships						
Liquidity	Profitability	Managerial Capability	SA and BA	SL and BA	SH and BA	BL and SA	BH and SA	SL and BL	SH and BH
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Low	Low	Low	3.3%	2.4%	4.7%	0.8%	4.9%	0.6%	7.0%
High	Low	Low	20.8	16.1	28.0	5.6	28.6	4.1	37.1
Low	Low	High	24.7	19.3	32.6	6.9	33.3	5.1	42.4
Low	High	Low	40.6	33.3	50.1	13.4	51.0	10.1	60.5
High	Low	High	72.0	65.2	79.1	36.7	79.6	29.8	85.2
High	High	Low	84.2	79.6	88.7	54.7	89.0	46.9	92.3
Low	High	High	86.9	82.9	90.7	60.1	91.0	52.4	93.7
High	High	High	98.1	97.4	98.7	92.2	98.8	89.6	99.2

Note: SA and BA designate average business and social relationship levels, they are captured in the intercept term in model (1).

5.3.2 Loan Pricing.

The analysis of how different levels of social and business relationships affect the level of interest rates charged in loans is presented in this section. Data obtained from the case study is used in the analysis. In the case study, bankers were asked to evaluate loan applications based on hypothetical cases which consider three different levels for social and business relationships along with two levels related to commonly used financial measures.

A loan of $50,000 to buy agricultural inputs is considered in the case study. Bankers were asked to price all the approved applications within the 18 different hypothetical cases presented. As a reference, a prime rate equal to 10 percent was stated.[19]

The initial hypothesis was that the higher the level of social and business relationships and the higher the level of the financial measures the lower the interest rate that the bank will charge for the loan. In addition, the number of approved cases should increase as the quality of the relationships or financial measures improve.

To facilitate the analysis, each level of the five variables is used to construct clusters of approved loans. Using data from these clusters, average interest rates charged for each of the categories considered for the variable, their standard deviations, minimum and maximum interest rate charged in the category, and the total number of cases approved within the category was estimated.

Table 5.9 reports the average interest rates charged for loans in which applicants have either a negative, neutral or positive level of social relationship with the bank. On average, an interest rate of 11.72 percent is charged to applicants with negative and

[19] See questionnaire (Q22) in the appendix for more details.

average social relationships with the bank. Applicants with a positive social relationship with the bank can expect their loans to have a slightly lower price, 11.66 percent. From these results, it can be implied that lenders charge a flat rate -prime rate plus a premium- to borrower's with whom they don't have a positive social relationship.

As expected, the number of approvals increases when the quality of social relationship between bankers and their customers improve. Only 242 approvals are reported when the level of social relationship is negative, while for positive social relationships the number of approvals increases to 302.

Table 5.9 Loan Pricing Based on Quality of Social Relationship

LEVELS	INTEREST RATE CHARGED					
	MEAN	STD	MINIMUM	MAXIMUM	RANGE	VALID N
Negative	11.72	.92	9.00	14.00	5.00	242
Neutral	11.72	.96	9.00	14.00	5.00	266
Positive	11.66	.98	9.00	14.00	5.00	302

A statistical analysis is performed to test if the differences in the average interest rate charged for each of the three levels in Table 5.9 are significantly different. A difference of means analysis is used for this purpose.

Null Hypothesis; H_o: $\mu_1 = \mu_2 = \mu_3$

Alternative Hypothesis; H_a: $\mu_1 \neq \mu_2 \neq \mu_3$

In this analysis it is assumed there are two normal populations with different means but identical variances. A logical point estimate for the difference in populations means is the sample difference $\bar{y}_1 - \bar{y}_2$. A t statistic is used to test the null hypothesis.

Using data from Table 5.9 the t-statistic is:

$t = 0.729 < t_{crt}$

This implies that the null hypothesis is not rejected. This means that there is no a statistically significant difference for the average interest rate charged in Table 5.9.

Table 5.10 reports the loan pricing results for the three levels of business relationships. On average, an interest rate of 11.76 is charged on loans to customers with whom the bank has a poor business relationship. The loan price is lower for those customers with average business relationships and yet lower, equal to 11.67 percent, for applicants with good business relationships.

As in the social relationships case, notice that when business relationships between lenders and their customers improve the number of approved applications increases. Only 188 applications were approved for customers with poor business relationships, while for those with good business relationships the number jumps to 329 approved cases.

An interesting characteristic of these results is that the minimum interest rate charged for a poor business relationship is higher than the minimum interest rate charged for a negative social relationship. It can be implied that bankers value their business relationships more than their social relationships with customers.

Table 5.10 Loan Pricing Based on the Quality of Business Relationship

LEVELS	INTEREST RATE CHARGED					
	MEAN	STD	MINIMUM	MAXIMUM	RANGE	VALID N
Poor	11.76	.97	10.00	14.00	4.00	188
Average	11.68	.95	9.00	14.00	5.00	293
Good	11.67	.95	9.00	14.00	5.00	329

Statistical analysis is used to test if there are significant differences in the means. The following is hypothesized:

Null Hypothesis H_o: $\mu_1 = \mu_2 = \mu_3$

Alternative Hypothesis H_a: $\mu_1 \neq \mu_2 \neq \mu_3$

A t-statistic was used to estimate if the means are not equal. The estimated t-statistic is:

$t = 1.029 < t_{crt}$

The calculated t statistic is lower than the critical value at a 95 percent significance level. This implies that means are not significantly different, thus the null hypothesis is not rejected.

The same analysis is performed for applications in which potential borrowers present low, average, and high levels of social and business relationships taken simultaneously. Low levels of social capital are related to negative social relationships

and poor business relationships, while, high levels of social capital are related to positive social relationships and good business relationships.

The analysis found that an interest rate equals to 11.86 percent is charged on average to applicants with low levels of social capital with the bank. The interest rate is lower and equal to 11.72 percent for those customers with average levels of social capital. Finally, the interest rate charged by banks to customers with high levels of social capital is 11.61 percent.

The number of cases approved shows the same tendency demonstrated in the previous cases, only 54 applications were approved for customers with low levels of social capital, the number of approvals increases by 122 percent when the quality of social capital increases. Table 5.11 reports all these results.

Table 5.11 Loan Pricing Based on the Quality of Social Capital

LEVELS	INTEREST RATE CHARGED					
	MEAN	STD	MINIMUM	MAXIMUM	RANGE	VALID N
Low	11.86	1.01	10.00	14.00	4.00	54
Average	11.72	1.03	9.00	14.00	5.00	99
High	11.61	1.00	9.00	14.00	5.00	120

A t-test is used to test for significant differences for the mean interest rates. The null hypothesis is:

Null Hypothesis H_o: $\mu_1 = \mu_2 = \mu_3$

Alternative Hypothesis H_a: $\mu_1 \neq \mu_2 \neq \mu_3$

$t = 1.508 > t_{crt}$

For a one tail test the t-statistic obtained in the analysis is significant at a 10 percent significance level. Thus, the three considered levels for social capital present mean interest rates that are significantly different at a 10 percent level.

Table 5.12 reports that the borrower's liquidity has a decisive impact on the interest rate charged. Bankers charged on average, a 11.97 percent interest rate to applicants with low liquidity and 11.57 percent to those with high liquidity. The results show only 286 approvals for customers with low liquidity, while, the number of approvals increases to 524 for applicants with high liquidity levels.

Table 5.12 Loan Pricing Based on a Potential Borrower's Liquidity

LEVELS	INTEREST RATE CHARGED					
	MEAN	STD	MINIMUM	MAXIMUM	RANGE	VALID N
Low	11.91	.92	9.00	14.00	5.00	286
High	11.57	.95	9.00	14.00	5.00	524

It is assumed that borrowers presenting different liquidity levels can expect different interest rates charged on their loans. The statistical test for significant differences in the interest rates means of the two levels is based on the following hypothesis.

Null Hypothesis H_o: $\mu_1 = \mu_2$

Alternative Hypothesis H_a: $\mu_1 \neq \mu_2$

A t statistic is used to test the null hypothesis. A 95 percent significance level is considered for a one tail test.

$t = 4.918 > t_{crt}$

The difference between the interest rates means for customers with different levels of liquidity is statistically significant at 5 percent level. Differences in liquidity levels are reflected in the interest rate charged.

Lenders consider profitability as the most important measure when they are evaluating a loan application. The results obtained from the estimation of interest rate differences for different levels of profitability support the last assertion.[20]

Table 5.13 reports that potential borrowers with low profitability levels can expect the highest interest rates on their loans, as well as, a low probability to obtain a loan. On average bankers charged an interest rate of 11.94 percent to non profitable customers. Customers with high profitability levels can expect slightly lower interest rates, the survey estimated an interest rate mean equal to 11.60 percent for these customers. The difference in loan pricing for high and low profitability accounts for 34 basis points.

[20] See ranking of financial measures presented in appendix

Table 5.13 Loan Pricing Based on a Potential Borrower's Profitability

LEVELS	INTEREST RATE CHARGED					
	MEAN	STD	MINIMUM	MAXIMUM	RANGE	VALID N
0. Low	11.94	.92	10.00	14.00	4.00	222
1. High	11.60	.95	9.00	14.00	5.00	588

A t-test is used to test the following hypothesis of mean interest rate charged on credits.

Null Hypothesis H_o: $\mu_1 = \mu_2$

Alternative Hypothesis H_a: $\mu_1 \neq \mu_2$

$t = 4.593 > t_{crt}$

The results show that the difference between the two means is statistically significant at 5 percent level. Differences in customer's profitability levels account for differences in the interest rates.

Table 5.14 reports how bankers perceive a borrower's managerial capabilities affect the interest rate charged. Loan prices based on the applicant's managerial capabilities show a higher variability than loan prices observed in the two previous financial measures, liquidity and profitability. Again, 34 basis points in loan pricing account for the difference between a high and low levels of managerial capability.

The total number of applications approved for customers having low levels of managerial capabilities is equal to 272. When bankers are evaluating loan applications

for customers with high levels of managerial capabilities the number of approvals increases to 538.

The mean interest rate charged to customers who have low levels of managerial capabilities is equal to 11.88 percent. When bankers realize that the applicant has sound management practices the interest rate charged is lower with a mean of 11.60 percent.

Table 5.14 Loan Pricing Considering a Potential Borrower's Managerial Capability

LEVELS	INTEREST RATE CHARGED					
	MEAN	STD	MINIMUM	MAXIMUM	RANGE	VALID N
0. Low	11.88	.89	10.00	14.00	4.00	272
1. High	11.60	.97	9.00	14.00	5.00	538

The following hypothesis is used to test if the difference of means is statistically significant. A t statistic is used to test the hypothesis.

Null Hypothesis H_o: $\mu_1 = \mu_2$

Alternative Hypothesis H_a: $\mu_1 \neq \mu_2$

$t = 3.985 > t_{crt}$

The null hypothesis has to be rejected. Differences in the applicant's managerial capabilities explain differences in the interest rate charged for loans.

Finally, it can be concluded that all the above variables (financial measures and social capital) affect the price of a loan. High liquidity levels are related with the lowest loan price and low profitability levels to the highest loan price.

5.4 Summary and Major Findings.

In general, the results of the empirical analysis strongly support the main hypothesis of the study. Bankers realize the importance of social and business relationships with their customers in a credit evaluation process, however financial measures dominate loan approval decisions.

On average, high levels of social capital (i.e., positive social and business relationships) account for up to 7.0 percent of the probability that a loan will be approved, even if the customer has a poor financial standing (i.e., low liquidity and profitability and poor managerial capabilities). When the quality of loan application is not clear (e.g. high liquidity, low profitability and high managerial capabilities) high levels of social capital can increase the probability of loan approval by 30 percent. In addition, customers with high levels of social capital can expect lower interest rates on their loans as compared to customers with low levels of social capital.

An apparent contradiction can be observed between the results obtained in the case studies and the factor analysis with the low marks that bankers assigned to social and business relationships at the moment to evaluate the importance of factors that determine a potential borrower's creditworthiness.

This contradiction can be explained by the extreme prudence with which bankers consider their social and business relationships with their customers when they evaluate their creditworthiness. This might be explained by the fact that prevailing government regulations and the bank's internal policies clearly state that this evaluation should be made under an impersonal basis.

A customer's creditworthiness evaluation should be made considering objective measures like the ones presented in credit scoring models or with commonly used

financial ratios. These practices are extensively employed by the banking industry and constitute standard business practices.

The results of the data analysis presented in this chapter strongly support the hypothesis that in an efficient credit market, the probability of approving a loan application will increase if there is a high level of social capital between lenders and potential borrowers. Based on these results, it can be argued that social capital between bankers and their customers plays an important role in credit markets. High levels of social capital facilitate the access to credit sources and improves the probability of obtaining a loan at a lower price.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction.

Classical economic theory assumes that inter-personal relationships do not affect the outcome of transactions. This implies that the social distance between buyers and sellers tends to be very large or the inter-personal relationships have no significant effect on transaction outcomes. Even though some social and economic studies assume implicitly that inter-personal relationships affect the outcome of economic transactions there have been no studies designed to estimate explicitly the effects that these relationships have on credit transactions.

The purpose of this study was to test the hypothesis that credit transactions are affected by social capital formed between bankers and their customers. To achieve this purpose the study analyzed the role that social and business relationships play in loan application evaluation procedures and the determination of interest rates charges.

Data from one hundred three (103) Michigan banks located in urban centers of less than 10,000 population was used to estimate or evaluate the following objectives:

1) To determine the importance of social capital in granting loans.

2) To measure the importance that bankers assign to their social and business relationships with their customers.

3) To investigate the relative importance of social and business relationships in the evaluation of credit applications.

4) To identify the activities and special programs promoted by bankers to develop new relationships and improve prevailing relationships with their customers.

5) To identify the common factors that determine a customer's creditworthiness and the development of social and business relationships between bankers and their customers.

6) To identify further research questions.

6.2 Summary of the Principal Findings of the Research.

The research results support the initial hypothesis regarding the important role that social capital plays in credit markets. The study shows that the probability of approving a loan application increases as the social capital between the customer and the bank increases.

Social and business relationships between bankers and their customers affect the outcome of credit transactions playing an important role in the loan evaluation, approval, and pricing processes. Based on the importance assigned to inter-personal relationships with customers, lenders tend to carefully consider relationships when designing promotional campaigns and promoting community events.

Lenders consider the prevailing social and business relationships, as well as, commonly used financial measures in evaluating a loan application. Customers with good relationships with a bank have a higher probability of obtaining a loan than those

who have bad relationships, however, lenders allocate a higher weight to the customer's financial measures in the loan evaluation process.

The study found that high levels of social capital between lenders and customers improve the probability of obtaining a loan by more than 7.0 percent. Customers in good financial standing and with high levels of social capital with their banks have up to a 99 percent probability to obtain a loan. On the other hand, customers with poor social and business relationships with their banks and with a poor financial standing face a 0.55 percent probability to obtain a loan. For applications reporting low levels in one or more financial measures (liquidity, profitability and others), high levels of social capital can increase the probability of loan approval by more than 30 percent.

Weak levels of social and business relationships are reflected in an increase in the interest rate charged in credit operations. The study found that customers with high levels of social capital can obtain loans that on average are priced 25 basis points below the interest rate charged to customers with low levels of social capital.

Social and business relationships are not a static concept, they are dynamic through time. Lenders and their customers are continually looking for means by which can develop new relationships and improve prevailing ones. Well-developed relationships can be an important asset for both lenders and their customers.

Business relationships are carefully considered by bankers in a credit evaluation process, while, social relationships are primarily used to attract new customers, develop business relationships, and to increase the bank's deposits and loan shares in the market.

Initially, it was found that more than 60 percent of the banks surveyed do not utilize a formally structured credit scoring model to evaluate loan applications[21]. It can

[21]See appendix B for more details.

be inferred that banks operating in small communities approve a loan based on heuristic methods, such as, analysis of specific financial ratios and a review of the applicant's credit history.

In general, banks that possess these scoring models have been utilizing them, on the average, for a little more than 5 years. Banks who have structured scoring models reported using these models very often, while only 7 percent of the participants used them occasionally.

6.2.1 The Analysis of Financial Measures.

The profitability of the customer's business is an important measure that the lender uses to evaluate a loan application. Borrowers with high profitability levels can expect a higher probability to obtain a loan at a lower price than customers having low profitability levels. Bankers tend to use the customer's debt service history as a measure of the customer's profitability

The riskiness of the loan is the second most important factor used by bankers in evaluating a loan application. Collateral is the most important factor in determining the riskiness of a loan.

The potential borrower's liquidity and solvency is the third most important measure in evaluating a loan application. The debt/worth ratio commonly used to evaluate loan applications, is considered by bankers to be the most important ratio in evaluating the applicant's liquidity and solvency.

The customer's managerial capabilities and his social and business relationships with the bank's personnel are the other two important factors considered by bankers in a credit evaluation process. The applicant's experience in business and his production and

marketing skills are reported by bankers as the two most important issues at the moment when evaluating the customer's managerial capabilities.

Bankers are aware of the importance of social and business relationships with their customers in a credit evaluation process, however, they ranked this variable considerably below financial measures. Thus, it can be inferred that the evaluation of a loan application is based primarily on the customer's financial measures liquidity, profitability, riskiness. However, social and business relationships also play a secondary but still an important role in a credit evaluation process, facilitating the customer's access to the credit institution, reducing the information required to perform the transaction, and reducing loan transaction costs.

6.2.2 Activities required to develop social capital

It is notable, the importance that bankers assign to high levels of social capital with their customers. A large percentage of bankers consider social and business relationships with their customers very important for their daily operations. Even more, bankers feel it is important to use their social relationships in developing business relationships with potential customers.

Bankers are continually looking for means they can use to improve the prevailing levels of social capital with their customers and the community. Advertising campaigns, participation in social, cultural and community events and patronizing community activities are some of the means that banks use to develop new relationships, to improve the prevailing levels of social and business relationships with their customers and to project a positive image within the community.

Another interesting result is the interest that bankers have in preserving social and business relationships with their customers. Bankers tend to avoid actions that can be harmful to their social and/or business relationships. For example, because of internal regulations and to preserve social relationships, bankers generally feel uncomfortable and try to avoid evaluating loan applications presented by their close relatives and friends.

6.2.3. Factors that determine a potential borrower's creditworthiness.

Using factor analysis, it was estimated that bankers are not only concerned about the analysis of financial ratios and other measures commonly employed in the evaluation of a customer's creditworthiness but bankers are also interested in factors such as their business and social relationships with the customer, and the customer's personal status within the community. The evaluation of the two components of social capital - social and business relationships with the applicant - is, according to bankers, necessary for a complete analysis of the customer's trustworthiness.

The customer's personal status is affected by his reputation within the community, which in turn is affected mainly by his honesty, and his managerial capabilities. Good managers are known by their personal and business achievements and usually are involved in many community activities.

6.2.4 Factors necessary to develop a good social relationship.

Lenders consider: a) the customer's honesty, b) the customer's willingness to continually cooperate, c) the lender's understanding of the customer's rights and responsibilities, and d) the degree of their involvement in community related programs, as the most important factors to develop a social relationship with their customers.

Based on the results of factor analysis, it can be stated that three common factors explain the development of a social relationship between lenders and their customers. These three factors are: a) the lender and customer social activities, b) the customer's behavior, and c) the banker's sensitivity towards their customers. Some of the social activities in which bankers and their customers participate are, for example, to be members of the same club, attend the same church, have children or family members that are friends and others.

The customer's behavior is explained by his demonstrated honesty and his willingness to cooperate in cases when unpredictable events occur. The banker's sensitivity can be explained by the customer's involvement in community related programs and his understanding of the customer's rights and responsibilities.

Finally, it can be stated that social activities are a necessary but not a sufficient condition to develop a social capital between bankers and their customers. Social relationships are mainly employed by bankers to develop business relationships, attract new customers to the institution, and to mobilize deposits.

6.2.5 Factors necessary to develop a business relationship.

The three most important elements considered by bankers as necessary for the development of a good business relationship are: a) the customer's demonstrated

honesty, b) the number of accounts that the customer has in the bank, and c) the bankers understanding of the customer's business. Business relationships are primarily used by lenders in the evaluation of a customer's creditworthiness, but they are also employed to increase the bank's market share of deposits and loans.

Factor analysis extracted two common factors which explain the development of a business relationship, these factors are: a) the amount and frequency with which transactions are performed, and b) the banker's sensitivity towards the customers.

The first factor is composed of variables such as, the frequency with which the customer visits the bank, the complexity of the customer's transactions in the bank, and the number of accounts that the customer has in the bank. The second factor is directly related to the degree to which bankers understand the customer's business.

6.3. Recommendations for future research.

This study has provided evidence that social capital plays an important role in credit markets, especially in the loan approval process. The next step is to complete the analysis from the customer's point of view. With this new information it would be possible to have a more complete matrix of elements that can explain the importance of relationships in credit markets. It would also be interesting to extend the analysis to other markets such as the land-lease market where social distance is low.

Another interesting research question is related to the importance that different markets assign to the minimum levels of social capital required to perform a transaction or the levels of social capital that can be developed in a particular market. For example, the lease markets requires that lenders and borrowers be continually interacting among themselves for a long period of time. Transactions performed in these markets tend to

develop good relationships among lessor and lessee. On the other hand, transactions which involve a specialized asset, such as the sale of an industrial plant do not tend to develop social capital because these transactions are performed only occasionally.

Another interesting research question is the role that social capital has in developing country credit markets. In these countries relationships constitute a very important asset for both bankers and potential borrowers. Potential borrowers without strong relationships with personnel working for a bank have very low probabilities of obtaining a loan. In some cases, they face constraints for their access to the formal credit system. A high percentage of the credit transactions performed in developing countries are done through vicarious relationships.

It would also be interesting to develop new theoretical models that can describe more accurately how social capital and its two components social and business relationships affect the outcome of different types of transactions performed in the market. Such models can be used to develop a more complete set of theoretical relationships that explain the important role that social capital plays in economic transactions.

APPENDIX A

SURVEY QUESTIONNAIRE

BANKS SURVEY

Q1. Does your institution use a formal credit evaluation or scoring procedure to determine which loan applications will be approved? (Please check one answer)

YES [ ] NO [ ]

Q2. If your answer is **YES**, please indicate how often do you utilize these credit evaluation procedures. (Please circle one answer)

A. Rarely. 1

B. Sometimes. 2

C. Very often, but not for each application. . 3

D. For each credit application. 4

Q3. How long has your institution been using the present credit evaluation system? (Please circle the appropriate number on the scale below)

YEARS

1 2 3 4 5 6 7 8 9 >10

Q4. Please indicate the importance that you and your institution give to the following financial ratios or a close modification in determining the liquidity and solvency of a potential borrower. (Please circle the appropriate number on the scale below)

	Unimportant								Very Important	
A. Current Ratio . . . . . (C. Assets/C. Liabilities)	1	2	3	4	5	6	7	8	9	10
B. Coverage Ratio. . . . . ((Total Income + Depreciation + Interest on debt - Income Taxes)/ (Principal and interest payments on debt))	1	2	3	4	5	6	7	8	9	10
Other(s) (Specify below)										
C. _____	1	2	3	4	5	6	7	8	9	10
D. _____	1	2	3	4	5	6	7	8	9	10

Q5. Please indicate the importance that you and your institution give to the following financial ratios or a close modification in determining the profitability and financial efficiency of a potential borrower. (Please circle the appropriate number on the scale below)

	Unimportant									Very Important
A. Return on assets	1	2	3	4	5	6	7	8	9	10
B. Net income.	1	2	3	4	5	6	7	8	9	10
C. Debt service history. .	1	2	3	4	5	6	7	8	9	10
Other(s) (Specify below)										
D. _____	1	2	3	4	5	6	7	8	9	10
E. _____	1	2	3	4	5	6	7	8	9	10

Q6. Please indicate the importance that you and your institution give to the following factors in determining the riskiness involved in lending to a potential borrower. (Please circle the appropriate number on the scale below)

	Unimportant									Very Important
A. The borrower's liquidity	1	2	3	4	5	6	7	8	9	10
B. The purpose of the loan.	1	2	3	4	5	6	7	8	9	10
C. Credit references reported by credit bureaus. . . .	1	2	3	4	5	6	7	8	9	10
Other(s) (Specify below)										
D. _____	1	2	3	4	5	6	7	8	9	10
E. _____	1	2	3	4	5	6	7	8	9	10

Q7. Please indicate the importance that you and your institution give to the following factors in determining a potential borrower's managerial capabilities. (Please circle the appropriate number on the scale below)

	Unimportant									Very Important
A. Organizational skills. .	1	2	3	4	5	6	7	8	9	10
B. Quality of financial information provided. . .	1	2	3	4	5	6	7	8	9	10
C. Production/marketing skills.	1	2	3	4	5	6	7	8	9	10
D. The borrower's education level.	1	2	3	4	5	6	7	8	9	10
Others(s) (Specify below)										
E. _____	1	2	3	4	5	6	7	8	9	10
F. _____	1	2	3	4	5	6	7	8	9	10

Q8. Please indicate the importance that you and your institution give to bank personnel being involved in social activities and community related programs in order to make the necessary contacts to attract new clients. (Please circle the appropriate answer)

A. Not important. 1

B. Important. 2

C. Very Important. 3

Q9. Please rank the following variables according to the importance that your institution gives to them in order to evaluate a loan application. (Please use a scale from 1 to 5)

A. Liquidity and Solvency _____

B. Profitability and Financial Efficiency _____

C. Riskiness _____

D. Managerial Capabilities _____

E. Relationships with applicant _____

Q10. Please indicate the importance that your institution gives to an advertising campaign in order to attract new customers. (Please circle the appropriate answer)

A. Not important. 1

B. Important. 2

C. Very Important. 3

Q11. Please indicate the degree to which you agree or disagree with the following statements related to the goals of your bank's advertising campaign. (Please circle the appropriate value on the scale below)

	Disagree									Agree
A. Let people know about your services.	1	2	3	4	5	6	7	8	9	10
B. Develop social relationships.	1	2	3	4	5	6	7	8	9	10
C. Develop business relationships.	1	2	3	4	5	6	7	8	9	10
D. Let people know that the bank cares about them as people.	1	2	3	4	5	6	7	8	9	10
F. Let people know that the bank supports community organized events.	1	2	3	4	5	6	7	8	9	10
Other (Specify below)										
G. _____	1	2	3	4	5	6	7	8	9	10

Q12. How often do you or other bank personnel patronize social, cultural, and other activities aimed to improve the bank's image and reputation within the community where it is located? (Please circle the appropriate answer)

A. Never. 1

B. From time to time. 2

C. Not too often. 3

D. Very Often. 4

Q13. Please indicate the importance that you and your institution give to the following factors when determining a potential borrower's credit worthiness. (Please circle the appropriate number on the scale below)

	Unimportant									Very Important
A. Amount of funds involved in the different transactions. . . .	1	2	3	4	5	6	7	8	9	10
B. The riskiness of the borrower's loan request. . . .	1	2	3	4	5	6	7	8	9	10
C. The borrower's liquidity.	1	2	3	4	5	6	7	8	9	10
D. The loan's purpose.	1	2	3	4	5	6	7	8	9	10
E. The borrower's profitability. . .	1	2	3	4	5	6	7	8	9	10
F. The borrower's reputation in the community.	1	2	3	4	5	6	7	8	9	10
G. The borrower's managerial capabilities.	1	2	3	4	5	6	7	8	9	10
H. The quality of social relationship.	1	2	3	4	5	6	7	8	9	10
I. The quality of business relationship.	1	2	3	4	5	6	7	8	9	10
J. Other accounts with your bank. .	1	2	3	4	5	6	7	8	9	10
K. Past Experience with bank. . . .	1	2	3	4	5	6	7	8	9	10

Other(s) (Specify below)

J. _____	1	2	3	4	5	6	7	8	9	10
K. _____	1	2	3	4	5	6	7	8	9	10

Q14. Please indicate the importance of the following factors in developing a good <u>social (friendship) relationship</u> between your bank's staff and customers. (Please circle the appropriate number on the scale below).

	Unimportant									Important
A. Members of the same club.	1	2	3	4	5	6	7	8	9	10
B. Attend the same church.	1	2	3	4	5	6	7	8	9	10
C. Customer's willingness to cooperate.	1	2	3	4	5	6	7	8	9	10
D. Attended school together.	1	2	3	4	5	6	7	8	9	10
E. Similar political preferences. . .	1	2	3	4	5	6	7	8	9	10
F. Customer's demonstrated honesty.	1	2	3	4	5	6	7	8	9	10
G. Live in the same neighborhood. . .	1	2	3	4	5	6	7	8	9	10
H. Near the same age.	1	2	3	4	5	6	7	8	9	10
I. The customer's office location. .	1	2	3	4	5	6	7	8	9	10
J. Have children or family members that are friends.	1	2	3	4	5	6	7	8	9	10
K. Involved in community related programs.	1	2	3	4	5	6	7	8	9	10
L. Understanding the customer's rights and responsibilities. . . .	1	2	3	4	5	6	7	8	9	10

Others (Specify below)

M. _____	1	2	3	4	5	6	7	8	9	10
N. _____	1	2	3	4	5	6	7	8	9	10

Q15. Please indicate the importance of the following factors in developing a good business (professional) relationship between your bank's staff and customers. (Please circle the appropriate number on the scale below)

	Unimportant									Important
A. The number of accounts that the customer has in your bank. . .	1	2	3	4	5	6	7	8	9	10
B. The complexity of the customer's transactions in your bank.	1	2	3	4	5	6	7	8	9	10
C. The frequency with which the customer visit your bank.	1	2	3	4	5	6	7	8	9	10
D. The amount of money deposited in the customer's bank accounts	1	2	3	4	5	6	7	8	9	10
E. The staff's friendliness attitude with the customers. . . .	1	2	3	4	5	6	7	8	9	10
F. Customer's demonstrated honesty.	1	2	3	4	5	6	7	8	9	10
G. Your understanding of your customer's business.	1	2	3	4	5	6	7	8	9	10

Others (Specify below)

H. _____	1	2	3	4	5	6	7	8	9	10
I. _____	1	2	3	4	5	6	7	8	9	10

Q16. Please indicate the importance of a social (friendship) relationship between you and your bank's customers with whom you currently do business. (Please circle the appropriate answer)

A. Not Important. 1

B. Important. 2

C. Very Important. 3

Q17. Please indicate the importance of a <u>business relationship</u> between you and your bank's customers with whom you currently do business. (Please circle the appropriate answer)

A. Not Important. 1

B. Important. 2

C. Very Important. 3

Q18. Please indicate the importance of a <u>social relationship</u> between you and your bank's customers in developing a <u>business relationship</u>. (Please circle the appropriate answer)

A. Not Important. 1

B. Important. 2

C. Very Important. 3

Q19. Please indicate if you will feel comfortable to <u>process loan applications presented by your close relatives</u>. (Please circle the appropriate answer)

A. Uncomfortable. 1

B. Neutral. 2

C. Comfortable. 3

Q20. Please indicate if you ever <u>appeal to social relationships in order to attract new customers</u> to your bank. (Please check the correct answer)

YES [ ] NO [ ]

Q21. Please indicate if you ever <u>grant a loan based on a vicarious social relationship</u>. (Please check the correct answer)

YES [ ] NO [ ]

Q22. Suppose you are evaluating a loan application for $50,000. Assume the purpose of the loan is to purchase agricultural inputs such as fertilizers, seeds, and chemicals or other similar working capital items that will be used in the next cropping season. After reviewing the borrower's characteristics described by the 18 different loan cases presented in the accompanying table, please indicate the likelihood of your institution granting the applicant's loan request by checking the appropriate decision <u>for each case</u>.

Please indicate your response to the loan application by checking YES for the <u>approval</u> of the credit operation and NO for <u>not approving</u> it. At the same time considering a Prime Rate of 10%, please indicate the interest rate that your institution will charge in the credit transaction.

<u>LOAN APPLICATIONS</u>

CASES	APPLICANT CHARACTERISTICS					YOUR DECISION		INTEREST RATE
	QUALITY OF SOCIAL RELATIONSHIP (see Q14)	QUALITY OF BUSINESS RELATIONSHIP (see Q15)	LIQUIDITY (see Q4)	PROFITABILITY (see Q5)	MANAGERIAL CAPABILITY (see Q7)	Please check YES for loan approval and NO for rejection YES	NO	If YES, level of interest rate charged in the credit transaction [%]
1	Neutral	Average	High	High	Low	[ ]	[ ]	[ ]
2	Neutral	Good	Low	High	Low	[ ]	[ ]	[ ]
3	Negative	Good	Low	High	Low	[ ]	[ ]	[ ]
4	Negative	Good	High	Low	Low	[ ]	[ ]	[ ]
5	Positive	Good	High	Low	High	[ ]	[ ]	[ ]
6	Neutral	Average	Low	High	Low	[ ]	[ ]	[ ]
7	Neutral	Average	Low	Low	High	[ ]	[ ]	[ ]
8	Neutral	Average	High	High	High	[ ]	[ ]	[ ]
9	Positive	Average	High	High	High	[ ]	[ ]	[ ]
10	Neutral	Poor	High	Low	High	[ ]	[ ]	[ ]
11	Positive	Good	High	High	Low	[ ]	[ ]	[ ]
12	Positive	Good	High	High	High	[ ]	[ ]	[ ]
13	Neutral	Poor	High	Low	Low	[ ]	[ ]	[ ]
14	Negative	Average	High	Low	Low	[ ]	[ ]	[ ]
15	Negative	Poor	High	Low	Low	[ ]	[ ]	[ ]
16	Positive	Poor	Low	High	Low	[ ]	[ ]	[ ]
17	Negative	Average	Low	High	High	[ ]	[ ]	[ ]
18	Neutral	Poor	High	High	High	[ ]	[ ]	[ ]

FIRST MAILOUT

September 16, 1991

FirstName~ LastName~
Title~
Bank~
StreetPO~
City~ State~ Zip~

Many bankers believe that the success of a banking institution is in part determined by its customers relationships. To examine the role of customer relationships in the banking industry in Michigan, your bank and other representative banks throughout the state have been selected to participate in the enclosed survey. Professionals directly involved in daily banking operations are being asked to provide their opinions. Your response to the questionnaire is important in analyzing and evaluating the relationships that affect the outcome of credit transactions.

You may be assured of complete confidentiality. The questionnaire has an identification number used for mailing purposes only. Your name and your institution's name will never be placed on the questionnaire. You indicate your voluntary agreement to participate in this research project by completing and returning the enclosed questionnaire. Your privacy will be guaranteed.

With your cooperation and that of other respondents we can provide you important information about your industry based on the enclosed survey results. You may obtain a summary of results by writing "copy of results requested" on the back of the return envelope, and printing your name and address below it. To ensure confidentiality, please do not put this information on the questionnaire itself.

We would be more than willing to answer any questions that you might have. Please feel free to write or call.

Thank you for your participation.

Sincerely,

Dr. Lindon J. Robison
Project Supervisor
(517) 353-9172

Marcelo E. Siles
Project Director
(517) 355-9653

POSTCARD

Last week a questionnaire was mailed to you seeking your opinion on how relationships affect the outcome of credit transactions. Your institution was selected in a scientifically designed sample of Michigan banks.

If you have already completed and returned the questionnaire to us, please accept our sincere thanks. If not, please do so today. Because the study involves a small, representative sample of Michigan banks, it is extremely important that your answers be included if the results are to accurately represent the opinions of Michigan bankers.

If by some chance you did not receive the questionnaire, or it got misplaced, please call me right now, (517- 355-9653), and I will get another one in the mail to you today.

Sincerely,

Marcelo E. Siles
Project Director

SECOND MAIL OUT

October 15, 1991

Name
Title
Address
City State, Zip Code

About four weeks ago we wrote to you seeking your opinion on the role of customer relationships in the banking system in Michigan. As of today we have not yet received your completed questionnaire.

The large number of questionnaires returned is encouraging. But, whether we will be able to describe accurately how the banking system feels about these important issues depends on you and the others who have not yet responded. This is because our past experience suggest that those of you who have not yet sent in your questionnaire may hold quite different opinions about relationships in the banking system than those who have.

This is the first statewide study of this type that has ever been done. Therefore, the results are of particular importance to Michigan's banking community. The usefulness of our results depends on how accurately we are able to describe how bankers assess the effect of relationships on credit transactions.

We are writing to you again because of the significance each questionnaire has to the usefulness of this study. Your name was drawn through a scientific sampling process in which every bank in Michigan had an equal chance of being selected. In order for the results of this study to be truly representative of the opinions of all Michigan banks it is essential that each banker in the sample return their questionnaire. It is for these reasons that we are sending this by certified mail to insure delivery.

In the event that your questionnaire has been misplaced, a replacement is enclosed.

Your contribution to the success of this study will be appreciated greatly.

Cordially,

Dr. Lindon J Robison
Project Supervisor

Marcelo E Siles
Project Director

APPENDIX B

BASIC INFORMATION FROM THE SURVEY

Table B.1 Use of a Formal Credit Evaluation or Scoring Procedure to Determine Which Loan Application Will be Approved.

Question Q1	
Does your institution use a formal credit evaluation or scoring procedure to determine which loan applications will be approved?	Percent of Respondents
YES	39.8%
NO	60.2%

Table B.2 How Often do you Utilize These Credit Evaluation Procedures?.

Question Q2 Please indicate how often do you utilize these credit evaluation procedures	Percent of Respondents
Rarely	0.0
Sometimes	7.3
Very often	68.3
For each credit application	24.4

Table B.3 How Long has your Institution Been Using The Present Credit Evaluation System?

Question Q3 Please indicate how long has your institution been using the present credit evaluation system?	RESULTS
MEAN	5.34 years

Table B.4 Importance of Financial Ratios in Determining the Liquidity and Solvency of a Potential Borrower.

Question Q4 Please indicate the importance that you and your institution give to the following financial ratios or a close modification in determining the liquidity and solvency of a potential borrower	RESULTS*
Current Ratio	7.440
Coverage Ratio	7.969
Debt/Worth Ratio	8.070

* Scale 1 (Unimportant) to 10 (Very Important)

Table B-5 Open Questions Q4C and Q4D. - Liquidity and Solvency

Q4C LIQUIDITY AND SOLVENCY	POINTS	Q4D LIQUIDITY AND SOLVENCY	POINTS
Net Worth to Total Debt	8		
Debt to Worth	10	Return on Assets	10
Debt to Worth	8		
Total Debt to Net Worth	9		
Debt/Worth	8		
Debt/Worth	7	Net Worth Growth-Profit Reten.	7
Debt/Worth Ratio	8		
Debt to Worth	8	Liquidity	8
Debt/Net Worth (Leverage)	8	Quick Ratio	6
Leverage - Debt/Worth	9	Review of Trends	9
Leverage - Debt/Worth	7		
Debt/Net Worth	8		
Quick Ratio	7		
Debt/Net Worth	9	Gross Profit Margin	9
Debt to Worth Ratio	8		
Debt/Worth	9		
Debt/Asset Ratio	7		
Debt to Worth	7	Receivables - Inventory Turns	7
Debt/Assets	8	Interest Expenses/Income	7
Debt/Income	10		
Cash Flow provided by Operation	9	W.K. provided by the Operation	9
NW/Total Assets	7		
Debt/Net Worth	8	Receivables Age	8
Debt/Equity	10		
Credit History	8		
Debt/Worth	7	Operating Cash Flow	8
Leverage Debt/Worth	8	Operating Margin	8
Debt to Worth	7	Loan to value	8
Debt/Worth	8		
Total Debt/Equity	9		
Debt/Worth	7		
Debt/Worth	9		
Debt/Worth	8	True Cash Inflows/Outflows	6
Debt/Worth MEAN	8.07	Cash Flow - MEAN	8

Note: Not all respondents responded to Q4C and Q4D.

Table B.6 Importance of Financial Ratios in Determining The Profitability and Financial Efficiency of a Potential Borrower

Question Q5 Please indicate the importance that you and your institution give to the following financial ratios or a close modification in determining the profitability and financial efficiency of a potential borrower	RESULTS*
Return on Assets	5.889
Net Income	8.314
Debt Service History	8.950
Gross Margin	8.500

* Scale 1(Unimportant) to 10 (Very Important)

Table B-7 Open Questions Q5D and Q5E - Profitability and Financial Efficiency.

Q5D PROFITABILITY AND FINANCIAL EFFICIENCY	POINTS	Q5E PROFITABILITY AND FINANCIAL EFFICIENCY	POINTS
Coverage	10	Debt/Worth	10
Debt to Worth Ratio	8		
Cash Flow	8		
Receivables (Days)	7	Inventory (Days)	7
Return on Equity	7		
Gross & Net Margins	9	Comparisons of Industry Trends	9
Gross Margin	10		
Receivables Group Rating	8		
A/R + Inventory Turnover	8		
Credit Bureau Reports	10		
Gross Margin	8	Net Profit Margin	8
Operation Expenses/Sales	7		
Gross Margin	8		
Operating Margins	8	Inventory/Receivables Turnover	8
GPM - Trends	7	OPM - Trends	7
Gross Margin - MEAN	8.5	Receivables/Inv. Turnover - MEAN	7.6

Note: Not all respondents responded to questions Q5D and Q5E

Table B.8 Importance of The Following Factors in Determining The Riskiness Involved in Lending to a Potential Borrower

Question Q6 Please Indicate the importance that your and your institution give to the following factors in determining the riskiness involved in lending to a potential borrower.	RESULTS
The borrower's liquidity	8.019
The Purpose of the loan	7.524
Credit References	7.990
Collateral Value	8.250

* Scale (1) Unimportant to (10) Very Important

Table B-9 Open Questions Q6D and Q6E - Riskiness.

Q6D Riskiness	POINTS	Q6E Riskiness	POINTS
Internal history w/Bank	10		
Type of Business	10	Track record of growth & Earnings	10
Collateral Analysis	8		
Character	8		
Industry Risk Analysis	8	Projections	7
Past Payment History	7		
Leverage	9	Cash Flow	9
Borrower's Debt/Worth	10		
Economic Conditions	10	Reliable Records	10
Character	9		
Repayment Factor-Debt payments/Income	7		
Capital	9	Collateral	9
Collateral Coverage	9	Coverage Ratio	9
Debt/Net Worth	9		
Debt/Worth	7		
Collateral Value comp. loan amount	7		
Ability to repay	10		
Suppliers	7		
Collateral Value - MEAN	8.25	Debt/Worth - MEAN	8.75

Note: Not all participants responded to questions Q6D and Q6E.

Table B.10 Importance of The Following Factors in Determining a Potential Borrower's Managerial Capabilities

Question Q7 Please indicate the importance that you and your institution give to the following factors in determining a potential borrower's managerial capabilities.	RESULTS*
Organizational skills	6.920
Quality of financial information provided	8.137
Production/marketing skills	6.970
The borrower's education level	4.750
Experience in business	9.330

* Scale (1) Unimportant to (10) Very Important

Table B-11 Open Questions Q7E and Q7F - Managerial Capabilities.

Q7E MANAGERIAL CAPABILITIES	POINTS	Q7F MANAGERIAL CAPABILITIES	POINTS
Years of Experience	9		
Experience in Business	10		
Character of Borrower	7		
Longevity	7		
Successor Management	7		
Historical Performance	9	Past Experience	9
Reputation	10		
Financial Management Skills	9		
Experience - MEAN	9.33	Reputation - Mean	8.5

Note: Not all participants responded to questions Q7E and Q7F.

Table B.12 The Importance That Bankers Give to Their Personnel Being Involved in Social Activities and Community Related Programs

Question Q8 Indicate the importance that you and your institution give to bank personnel being involved in social activities and community related programs to make the necessary contacts to attract new customers.	Percent of Respondents
Not Important	1.9
Important	37.9
Very Important	60.2

Table B.13 Ranking Variables Based on Their Importance in The Evaluation of a Loan Application.

Question Q9 Rank the following variables according to the importance that your institution gives them in order to evaluate a loan application	RESULTS*	RANK
Profitability and Financial Efficiency	1.660	1
Riskiness	2.641	2
Liquidity and Solvency	2.660	3
Managerial Capabilities	3.476	4
Relationships with Applicant	4.563	5

* Note: (1) Most Important (5) Least Important.

Table B.14 Importance That Lending Institutions Give to Advertising Campaigns in order to Attract New Customers

Question Q10	
Please indicate the importance that your institution gives to an advertising campaign in order to attract new customers	Percent of Respondents
Not Important	27.2
Important	65.0
Very Important	7.8

Table B.15 The Goals of the Bank's Advertising Campaign

Question Q11 Please indicate the degree to which you agree or disagree with the following statements related to the goals of your bank's advertising campaign.	Rating*
Let people know that the bank supports community organized events	8.3
Let people know that the bank cares about them as people	8.2
Let people know about your services	8.1
Develop business relationships	7.4
Develop social relationships	4.9

* Scale (1) Unimportant to (10) Very Important

Table B-16 Open Questions - Q11F and Q11G - Goals of Advertising Campaigns.

Q11F GOALS OF ADVERTISING CAMPAIGN	POINTS	Q11G GOALS OF ADVERTISING CAMPAIGN	POINTS
Let People know we are Competitive	10		
New Products	10		
Product Advertising	10	Image Advertising	2
Product Advertising - MEAN	10	Image Advertising - MEAN	10

Note: Not all participants responded to questions Q11F and Q11G.

Table B.17 Frequency with which Bankers Patronize Social, Cultural and other Activities Aimed to Improve the Bank's Image and Reputation Within the Community Where it is Located

Question Q12	
How often do you and your bank personnel patronize social, cultural, and other activities aimed to improve the bank's image and reputation within the community where it is located.	Percent of Respondents
Never	0.0
From Time to Time	11.7
Not too Often	9.7
Very Often	78.6

Table B.18 Factors That Determine a Potential Borrower's Creditworthiness

Question Q13

Please indicate the importance that you and your institution give to the following factors when determining a potential borrower's creditworthiness	RATINGS*
The riskiness of the borrower's loan request	8.784
The borrower's profitability	8.686
Past experience with bank	8.653
The borrower's liquidity	7.971
The loan's purpose	7.520
The borrower's managerial capabilities	7.510
The borrower's reputation in the community	7.343
Other accounts with your bank	7.147
The quality of business relationship	6.922
Amount of funds involved in different transactions	6.740
The quality of social relationships	4.148

* Scale (1) Unimportant to (10) Very Important

Table B.19 Open Questions Q13L and Q13M - Creditworthiness.

Q13L CREDITWORTHINESS	POINTS	Q13M CREDITWORTHINESS	POINTS
Cash Flow	8		
Ability & Willingness to repay	10		
Abil. & Willig. repay - MEAN	10	Cash Flow - MEAN	8

Note: Not all participants responded to questions Q13L and Q13M

Table B.20 Factors that Determine the Development of a Social Relationship

Question Q14 Please indicate the importance of the following factors in developing a good social relationship between your bank's staff and customers	**RATING***
Customer's demonstrated honesty	8.505
Customer's willingness to cooperate	7.275
Understanding the customer's rights and responsibilities	7.245
Involved in community related programs	6.466
Members of the same club	5.592
Attend the same church	4.835
The customer's office location	4.660
Live in the same neighborhood	4.272
Attended school together	4.194
Have children or family members that are friends	4.039
Near the same age	3.680
Similar political preferences	3.282

* Scale (1) Unimportant to (10) Very Important

Note: There were no responses for questions Q14M and Q14N.

Table B.21 Factors That Determine the Development of a Business Relationship

Question Q14

Indicate the importance of the following factors in developing a good business relationship between your bank's staff and customers	RATINGS
Customer's demonstrated honesty	8.777
Your understanding of your customer's business	8.641
The staff's friendliness attitude with the customers	8.379
The amount of money deposited in the customer's bank accounts	7.272
The number of accounts that the customer has in your bank	6.825
The complexity of the customer's transactions in your bank	5.767
The frequency with which the customer visits your bank	5.573

* Scale (1) Unimportant to (10) Very Important.

Table B.22 Open Questions Q15H and Q15I - Factors to Develop a Good Business Relationship.

VERSION	Q15H BUSINESS RELATIONSHIP	POINTS	Q15I BUSINESS RELATIONSHIP	POINTS
2	Bank's Professional Ability	10		
	Bank's Prof. Abil. - MEAN	10		

Table B.23 Importance of Social Relationships Between Bankers and Their Customers

Question Q16	
Please indicate the importance of a social relationship between you and your bank's customers with whom you currently do business	Percent of respondents
Not Important	34.7
Important	52.5
Very Important	12.9

Table B.24 Importance of Business Relationships Between Bankers and Their Customers

Question Q17 Please indicate the importance of a business relationship between you and your bank's customers with whom you currently do business	Percent of respondents
Not Important	0.0
Important	36.9
Very Important	63.1

Table B.25 Importance of a Social Relationship in Developing a Business Relationship

Question Q18	
Please indicate the importance of a social relationship between you and your bank's customers in developing a business relationship	Percent of responses
Not Important	38.8
Important	53.4
Very Important	7.8

Table B.26 Process Loan Applications Presented by Close Relatives

Question Q19 Please indicate if you will feel comfortable to process loan applications presented by your close relatives	Percent of respondents
A: Uncomfortable	75.5%
B: Neutral	14.7%
C: Comfortable	9.7%

Table B.27 Appeal to Social Relationships in Order to Attract New Customers

Question Q20 Please indicate if you ever appeal to social relationships in order to attract new customers to your bank	Percent of responses
YES	57.3%
NO	42.7%

Table B.28 Grant Loans Based on Vicarious Social Relationships

Question Q21 Please indicate if you ever grant a loan based on a vicarious social relationship	Percent of respondents
YES	15.5%
NO	84.5%

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