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Understanding the Role of Bank Relationships, Relationship Marketing, and Organizational Learning in the Performance of People's Credit Bank

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Chapter 2

A REVIEW OF THEORY AND EMPIRICAL EVIDENCE, AND HYPOTHESES FORMULATIONS

Chapter 2 has two main aims. The first aim is to sharpen the definition of meaningful concepts or constructs which come from the research questions in Chapter 1 and to explain the complexity of the bank-client relationship. Through a review of theoretical and empirical evidence, the concepts which are chosen, like bank relationship, relationship marketing, organizational learning, performance, etc., can be measured empirically in survey and case studies. The first aim is achieved through a critical review presented in sections 2.1 until 2.9. These sections review a possible cross-fertilization among different lines of interdisciplinary fields of study, particularly concerned with cross-fertilization of bank relationships, relationship marketing, and organizational learning studies. Some of the studies pay attention to the impact of a bank relationship, relationship marketing, and organizational learning on business performance separately. By seeing some common elements of the main concepts, such as duration of a relationship among parties in business transactions, economic of information, value creation, etc., the concepts are integrated to achieve the second aim.

The second aim is to formulate testable hypotheses, which will then be presented in a path diagram as hypothesized models of both a bank performance model and a client intention to leave model. The hypothesized models are discussed in section 2.11. Both sets of models are complementary in order to shed light on the sustainable performance of BPR. These models are concerned with the explanatory study that will be presented in Chapter 7 and Chapter 8 respectively. However, they do not explain all of the research questions, as they only address the third and fourth research questions. Chapter 5 and Chapter 6 are exploratory studies that precede these chapters and deal with research questions one and two.

Beyond the analysis of these four chapters, the relationship process is a complicated matter, as the problem of asymmetric information is not easily solvable. As seen from the viewpoints of (1) the value chains and supply chains of business and social relationships, (2) the geographical proximity, and (3) the principal agency relationship, then the relationship processes among parties seem to be a complex undertaking. Indeed, an additional case study is needed to seek relevant data to answer the last research question. Chapter 9 will elaborate on the complexity of relationships, particularly relationships between banks and clients.

2.1 Accessibility and Availability of Credit

Asymmetric information is the root of two problems i.e., (a) adverse selection and (b) moral hazards in the financial market. These two problems create additional barriers for small and micro businesses (SMEs) to access formal banking credit, or they accept credit rationing from the bank. One policy formulation forum concluded that access to credit and credit availability must receive higher priority than low interest rates or subsidized loans, in correlation with political and social considerations (ADB, 2001; Berry et al., 2001).

Generally, the large size firms have access to a broader range of alternative financing sources and should, therefore, be subject to relatively fewer credit constraints than SMEs. Barriers to broader sources of funds (accessibility) lead to a limited availability of external funds for the SMEs. SMEs are particularly vulnerable to a lack of credit availability, because they are so often *informationally opaque* (Berger et. Al, 1999; Berger, Klaper and Udell, 2001). The informationally opaque firms create asymmetric information, in which the owner managers of SMEs generally have better information than potential creditors about business prospects. It is believed that one of the most powerful technologies available to reduce information problems in SMEs' financing is "relationship lending". Through relationship lending, banks acquire updated information overtime through frequent, face-to-face contact with the firm owner and local community during the monitoring process.

Recent empirical evidence provides support for the importance of banking relationships for SMEs in terms of both credit availability and credit terms such as loan interest rates and collateral requirements (Berger and Udell, 1995, 2002). Berger and Udell identify three characteristics of relationship lending. *First*, relationship lending depends on "soft" information about a firm, its owner, and the local community. *Second*, the loan officer typically has close relationships with the firm, owner, and community. *Third*, an agency problem arises between the loan officers and the bank management because of the soft nature of information. A certain organizational structure may be able to resolve the agency problem.

The existence of an imperfect financial market can be described as market failure when a competitive market fails to bring about an efficient credit allocation and distorts investment decisions in the presence of an asset-substitution problem (Jensen and Meckling, 1976), an under-investment problem (Myers, 1977), and an over-investment problem (Meza and Webb, 1987). Several studies on SME financing indicate that SMEs are affected by imperfections of financial markets in obtaining external funds compared to larger companies (Loes-Gracia and Aybar-Aisas, 2000). It is worth noting that when an economic environment changes, it leads to

bank consolidation, mergers, and acquisitions, and most likely affect the credit allocation that hits the core problem of SMEs i.e., changes the accessibility and availability of credit (Sapienza, 2002; Karceski, Ongena and Smith, 2005).

2.2 The Size Effect and Local Nature of a Financial Intermediary

Large size banks tend to lend to medium and large companies, while small or micro banks often specialize in small size lending to SMEs (Peek and Rosengren, 1996; and Stratan and Weston, 1996). Small or micro-banking institutions tend to invest much higher proportions of their assets in SME loans than large banks (Berger, Saunders, and Scalise, 1998). Small banks¹ cannot disburse large sized loans because of: (a) legal lending limit regulations that only allow a bank to grant loans at most a fraction of its equity capital and (b) the diversification strategy of a loan portfolio to minimize potential credit risk. In contrast, large commercial banks have small portions of their loan portfolios with SMEs, due to the problem of economy of scale in the screening and monitoring process.

Small banks that operate locally may encounter some constraints that limit their potential growth and result in a lack of geographical diversification in doing their business. Their progress depends heavily on the growth of the real sector in the region. Meanwhile, the large banks of both national and international banks have broader geographical diversification and greater potential growth. In addition, they are able to offer lower interest rates on loans, because they have an advantage of being able to collect funds at lower interest rates. Nevertheless, the survival and sustainability of small banks are established through a creation of information advantages through strong bank relationships. Geographic proximity between a small bank and its clients facilitates frequent face-to-face communication and, subsequently, increases a strong bank relationship. The integration of small banks with their borrowers that belong to the same community makes it possible for those banks to have more accurate and timely client information. Hence, small banks are more knowledgeable about the local nature of firm risks and they can update continuously at lower costs than larger banks (Ferri and Messori, 2000). Small banks can take advantage of the geographical location to establish stable bank firm relationships to offset the lack of broad geographic coverage and diversification. The advantages arise from repeated interactions between a bank and its clients through long-term contractual loan relationships that potentially reduce asymmetric information problems. By increasing information accuracy, small banks can be more confident in their decisions and

¹ Including regional banks.

ultimately reduce potential credit risks. As a local bank, a small bank can be more confident in granting loans through a faster screening process than a national bank. The size effect of a bank relationship may be disrupted by a shock to the banking system. For example, the impact of the US “credit crunch” of the early 1990s and the effect of the consolidation of the banking industry on the availability of credit to SMEs have also been the subject of much research over the past several years (Berger and Udell, 1994, 1998, Peek & Rosengren 1995).

2.3 Bank Relationships and Relationship Marketing

Over the years, researchers in the banking industry have accumulated a significant body of theoretical and empirical knowledge about the value creation of a bank relationship in business or debt financing. However, a void still needs to be filled to enrich this body of knowledge. Some contradictory and mixed conclusions from previous studies on the value of a bank relationship, the limited studies on bank relationships with deposit clients, and the almost non-existent studies on micro banks, are amongst the gap in the literature that create opportunities for further empirical research. Before addressing these opportunities, first the bank relationship along with the complementary fields of studies are mapped, such as relationship marketing and organizational learning.

A bank relationship is defined by Ongena and Smith (2000) as the connection between a bank and clients that goes beyond the execution of simple, anonymous, financial transactions. Bank relationships arise from continuous interactions between a bank and its clients through deposit and loan transactions. A bank learns about the private information of its clients’ business prospects, cash flow, and their behavior in e.g. loan repayments. Berger, Klapper and Udell (2001) also disclose information advantages of close bank interactions through bank loans to overcome information asymmetric problems. The information advantages arise from the fact that relationship lending is generally associated with a “soft” or qualitative information gathering overtime through repeated interactions with clients and the community. The soft information may be difficult to quantify, verify, and codify into a written or reported information. The ability of a bank to use this type of information will speed up the screening process to renew loan contracts of existing clients.

2.3.1 Measures of Bank Relationships

From various empirical and theoretical studies, the bank relationship concept is measured by some measurable variables (indicators), i.e., (a) duration, (b) scope, (c) control, and (d) number of banks or exclusiveness (concentration).

First, the duration of a relationship is the first observable measure of a bank relationship. The ability for a given bank to maintain a relationship for a long period will depend on the value of the services offered, client characteristics, competitive market environment, regulations and supervision, and macroeconomic condition. Japan and continental European countries tend to be bank-dominated economies, where relationship-based financing plays a dominant role in debt financing. From the empirical research, Horiuchi et al. (1998) estimate the duration of Japanese bank-client relationships is between 21 and 30 years. Elsas and Krahnert (1998) estimate the mean duration of a bank relationship with German companies to be 20 years, while in contrast, Cole (1998) finds the mean duration of US firms in his sample to be seven years. A hidden problem with the duration estimates is known as a censoring problem, as no one can observe the full history of the duration intended to know of all cases within the duration window of a survey. The left censoring problem is related to the unobservable beginning of the relationship, and the right censoring problem arises from the unobservable ending of the relationship. The observed maximum length of the relationship is limited by an observation window and the age of the clients. Last but not least, since the duration is the most important proxy in the bank relationship, the issue of methodology of duration has to be part of the consideration in the interpretation. To obtain consistent estimates of relationship duration, Ongena and Smith (2001) adopted censored-robust estimators of the *hazard function*. A hazard function measures the likelihood of ending a bank relationship as being conditional on its duration. A hazard rate (or event history) analysis estimates the time of discontinuation. They found that the mean length of an observed bank relationship with no adjustment for censoring is six years. After adjusting for censoring, the estimate of mean duration varies between 15 and 21 years. The down sloping of the hazard function implies a decreasing value in the bank relationship. In the end, clients will switch to another bank. Without a further detailed explanation, they stated that switching from one bank to another is a behavior of client firms to end a bank relationship driven by some exogenous or endogenous factors.

Second, the scope of a bank relationship is the variety of products provided by the bank to its clients. As a financial intermediary institution, the bank relationship does not only offer loans but also provides types of deposits. Beyond the intermediary function, a bank also offers investment instruments in stock or money markets and an array of services in check clearing, cash management, etc. These types of bank related instruments may enable the bank and its clients additional contracting flexibility through re-negotiation. A research concerning this type of relationship was undertaken in the 1960s by Hodgman, Kane, and Malkiel (see Ongena and

Smith, 1998), and intermittent and limited follow up research contributions are currently available by, among others, Nakamura (1993), Vale (1993), and Rajan (1998).

Third, corporate control (extended bank relationships) is an authority of a bank to monitor its clients in principal-agent relationships. Broadly speaking, a bank acts as a principal and its clients act as agents in the principal-agent relationship. Germany and Japan allow banks to have dual roles in business financing as creditors and shareholders of client firms. This characteristic, which can create close ties between a bank and its clients, is named by Ongena and Smith (1998) as an extended bank relationship. Board-of-director interlocks, where firms and banks share common board members, which provides an extra mechanism for the bank to facilitate information flow between the bank and its clients. Hoshi, Kashyap, and Scharstein (1990) emphasize that the placement of key bank personnel in top managerial positions of group firms in Japan reinforces the bank's power as a shareholder and creditor. By 1987, the shareholding of a firm's outstanding stock was reduced from 10% to a maximum 5% and in 1980 a group of firms did 21% of their borrowing from their group's financial institution. One of the salient features of Japanese corporate financing arrangements is in its relation with industrial groups known as *kieretsu*. The industrial groups have special relations with banks as affiliations by cross holding.

Fourth, the number of bank relationships is a measure of the exclusiveness of a relationship between a bank and its clients. A theory about the number of bank relationships is being developed and tested by using empirical data in various countries. Detragiage, Garella, and Guiso (2000) prove that the optimal number of bank relationships is generally greater than one. Petersen and Rajan (1994), and Harhoff and Korting (1998) describe that as being statistically consistent with the point of view of the bank relationship theory. Across 20 European countries for the sample, Ongena and Smith (2000) show a variation on the average number of bank relationships per firm ranging from 2 to 12 banks. In US studies, SMEs tend to maintain fewer bank relationships than large firms. They estimate the mean number of banks per firm to be two and the median to be one. Firms in the UK, Norway, and Sweden maintain relatively few bank relationships – less than three on average – while firms in Italy, Portugal, Belgium, and Spain maintain an average of ten or more bank relationships. Ongena and Smith (1998) show that although firm size is important in describing the number of bank relationships per firm, the size of firms within a country does not alone explain the variation in the average number of bank relationships across countries.

2.3.2 Values of Bank Relationships

A bank relationship is “special”, in that it creates potential net benefits for both a bank and its clients. Empirical evidence disclosed some potential sources of benefits and costs in a bank relationship. Most of the studies on bank relationships partially address value creation issues and pay much attention to the value accrued to borrowers rather than to the bank. However, the net benefits of a bank relationship should be evaluated critically for possible ambiguity from different research findings and underlying relevant factors of interest. The following review focuses on the empirical research of sources of value in a bank relationship.

First, a bank relationship transmits positive information (market signals) to investors. A list event studies (Ongena and Smith, 1998) on bank loan announcement conveyed positive information to investors of publicly-listed firms, reducing the firm cost of capital from public funds in an efficient capital market. The market facilitates a mechanism where a bank relationship reduces asymmetric information, as banks produce private or insider information of firms. Ultimately, the announcement of bank loans (new or renewed) leads to a fair price of security prices, or it can reduce under-pricing of stock prices. Petersen and Rajan (1994) put forward the idea that a long relationship may serve as a positive signal to the market, signaling that credit worthiness of a firm.

Second, the duration of a relationship may create value. Table 2-1 reveals some possible impacts of duration bank relationship and number bank-relationship on cost (interest rate) and [availability of credit](#). By seeing the table (below), the duration of a relationship has three possible impacts on loan rates: (a) the longer the duration of a relationship, the lower the loan interest rates (e.g., Berger and Udell, 1995), (b) the duration of a relationship does not have an impact on loan interest rates (e.g. Blackwell and Winters, 1997), and (c) the longer the duration of a relationship, the higher the loan interest rates - which means it creates cost (e.g., Degryse and Van Cayseele, 2000). This illustration reflects that there is no single conclusive finding. It implies that there is still room for investigation, since one researcher and another one may use the same concepts/variables but may use different proxies (measurements) that can lead to different results. For example, Berger and Udell (1995) use a line of credit, while Petersen and Rajan (1994) use overall credit to address loans from the same source of data.

Table 2-1: Some findings on the impact of two bank relationship dimensions or indicators on two sources of value of relationships

Impact → on ↓ of		LOAN TERMS (Y)	
		Cost of credit : The interest on loan + transaction costs	Availability of credit: The volume
RELATIONSHIP DIMENSIONS (X)	Duration <input type="checkbox"/> Length of a relationship	<input type="checkbox"/> Negative: Berger and Udell (1995); Angelini et al. (1998) for CCB member <input type="checkbox"/> No: Blackwell and Winters (1997), Petersen and Rajan (1994); Harhoff and Korting (1998); Elsas and Krahen (1998) <input type="checkbox"/> Positive: Degryse and Van Cayseele (1998); Angelini et al. (1998) for non-CCB;	<input type="checkbox"/> Positive: Cole (98); Berger and Udell (1995); Petersen and Rajan (1994); Harhoff and Korting (1998); Angelini et al. (1998) <input type="checkbox"/> No: Degryse and Van Cayseele (1998);
	Number of bank: <input type="checkbox"/> single (exclusive) → multiple banks	<input type="checkbox"/> Negative: Angelini et al. (1998); D'Auria et al. (1999) <input type="checkbox"/> No: Harhoff and Korting (1998) <input type="checkbox"/> Positive: Petersen and Rajan (1994)	<input type="checkbox"/> Negative 1. Cole (98) 2. Petersen and Rajan (94, 95) 3. Harhoff and Korting (1998) 4. Angelini et al. (1998) <input type="checkbox"/> Positive 5. Houston and James 1996

Note: Loan terms or credit standards consist of loan interest rates, credit volume (availability or principal), collateral and guarantees, currency denomination, options (callable, etc.), and maturity (tenor).

Third, reputation building is a value creation as a reflection of borrower characteristics in terms of willingness to repay as a major complement of the ability to repay. As a relationship progresses, the bank accumulates more relevant information from its clients. It enables the accumulation of reputation-building or formation across time for both a bank and its clients, both deposit and credit clients. The older banks tend to receive a perceived higher reputation from deposit clients. The same is true for borrowers, as the longer the duration of a relationship, the more likely a borrower will gain a higher reputation from a bank. There is a life-cycle effect in the use of borrowing through a bank. New firms borrow from banks initially but later they issue public debt or equity through the capital market after the clients gain a good reputation from their relationships. Relationship lending has proven that long credit standing or reputation building through screening, monitoring lead to easier in new credit granting or following repeated renew of the credits (Diamond, 1991; Sharpe, 1990; Rajan, 1992; etc.).

Fourth, the information confidentiality creates value. Confidentiality of proprietary information can be maintained more reliably in bilateral (exclusive) relationships than in multiple bank relationships. Leakage of valuable information related to high quality innovation

can harm clients in their future performance. It may be the reason clients are relying on exclusive relationship (Yosha, 1995; Cambell, 1979; Bhattacharya and Chiesa, 1995).

Fifth, the flexibility in contracting through a readjustment of the terms of a contract as additional information of borrower acquired by bank. Boot and Thakor (1994) show a flexibility of loan terms: interest and collateral can be adjusted favorably for firms as they are considered to be successful in their project or investment opportunity.

Sixth, the screening firms' quality that go through credit committee is a discriminating process between creditworthy (high quality) and non-creditworthy (low quality) borrowers. Bank relationships provide soft (qualitative) information that makes the screening process have more discriminating power in the selection between high grade and low grade quality firms (Bester, 1985; and Stiglitz and Weis, 1981). A bank loan provides accreditation for a firm's ability to generate a certain cash flow in the future (Fama, 1985). It means that loan renewal acts as an accreditation of the ability for a borrower to meet future obligations; therefore, it is a reflection of borrower quality.

Seventh, the decreasing learning cost curve is a cost saving that create value of bank relationship. Over the progress of relationships bank learns better and faster about cash-flow pattern of debtors or borrowing firms The accumulation of soft information, along with the effect of reputation, makes the cost function of a bank (transaction costs and monitoring costs) slope downward in the monitoring of borrowers, and it can be best explained as a learning cost function. The decrease of the learning cost curve means a decrease in transaction costs, in which a bank and its clients gain benefits from it. However, learning is a process not the end result. Section 2.7 facilitates further discussion of the relationship process.

2.3.3 Costs of Bank Relationships

Hayes (1995:451) explains the specific causes of credit market failures are (1) the market power held by lenders (banks) - through mergers and acquisition external growth strategy and (2) because of asymmetric information – the information gap between the borrower and lenders. Sapienza (2002) and Karceski, Ongena, and Smith (2005) study the same case of bank mergers for two unique relationship characteristics of predominantly multiple relationships (Italy) and predominantly single/exclusive relationships (Norway) respectively. They found some important points, among others, that there is a possibility that the merger might not harm borrowers who have low switching costs or those who have set multiple bank relationships, hence to avoid banks from exercising post merger market power. However, it is

worth noting that the prevalence of exclusive (single bank) relationships is common among SMEs and characterized by (a) having high switching costs, (b) having an elastic demand of credit, and (c) being informationally opaque. Bank relationship can create a risk of lock-in or the risk of captured clients where banks build up market power. The capture theory explains that whenever a bank, or particularly a micro bank which has spatial market power, may create a situation where its clients become inert or ‘powerless’ and exploit them. Banks that have superior information over their rival banks are likely to gain market power over their clients. Superior information is accumulated as the relationship between a bank and its clients progresses through repeated loan and monitoring interactions.

2.3.4 Net Benefits of Bank Relationships

A thorough overview of the partial impact of a bank relationship on value creation has been presented in the two sub-sections of 2.3.2 and 2.3.3 above. However, these are not the only explanations of bank relationships. As a follow up of the discussion, Bornheim, and Herbeck, (1998) give a framework in integrating the marginal benefits and marginal costs of bank relationships depicted in one graph (.Figure 2-1). The graph displays three beneficial functions and costs of bank relationships, which are:

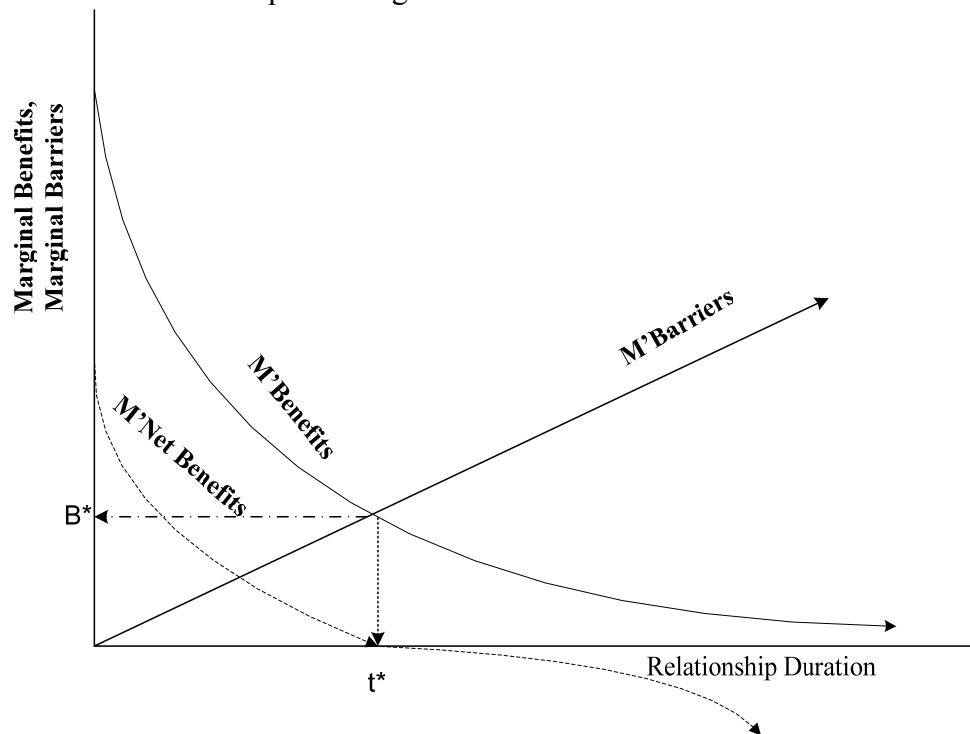
1. *The Marginal Benefits (M'Benefits)* curve is a downward sloping, exponential function, approaching to zero (asymptotic) toward the relationship duration line
2. *The Marginal Barriers to Exit (M'Barriers)* curve is a linear upward sloping curve.
3. *The Net Benefits (M'Net Benefits)* is the difference in function of *M'Benefits* and *M'Barriers*.

Table 2-2: A list of some possible sources of marginal benefits and marginal costs (barriers) from bank relationships

The Marginal Benefits (M'Benefits)	The Marginal Barriers to Exit (M'Barriers)
1. Lower cost of capital or loan interest rates	1. Dependence on one bank (lock-in, hold-out, captured) when a bank has monopoly power
2. Greater availability of credit	2. Increasing cost of changing banks or switching costs (substitution costs)
3. Less collateral required	3. Decreasing utility value of relationships
4. Positive market signal, screen client quality	4. Threat of competition that leads to valuable client exit of a relationship
5. Long term interest of lender (equity holding)	
6. Greater information and reputation formation/building	
7. Different cost function and decline in learning cost curve	
8. Flexibility in contracting or negotiating	

The marginal benefit is an additional positive impact on the value of a relationship. It is a value creation of both parties in a bank relationship, while the marginal barrier or marginal cost is a potential value destruction. The list of benefits and costs of bank relationships (Table 2-2) is compiled from Bornheim and Herbeck (1998) and from some findings mentioned in the sections (2.3.2 and 2.3.3.) above.

.Figure 2-1: Illustration of marginal net benefits that accrue affecting the value of bank relationships with a given bank client



Source: Bornheim & Herbeck,1998

How the financial market participants, in particular the micro-banks (BPRs), can employ the net benefit of a relationship is the subject of further discussion in the subsequent sections.

2.3.5 Bank Relationships and Relationship Marketing: a Cross-Fertilization

From sub-section 2.3.1 through sub-section 2.3.4, the discussion has been focused on bank-client relationships. These sub-sections deal with two important dimensions of empirical studies on bank relationships, which are (a) the measures of a bank relationship and (b) the possible creation of value or benefits and costs during repeated bank and client interactions. Economic and financial theories are the drivers of the empirical and theoretical developments of a bank relationship. Most empirical research on bank relationships is mainly undertaken in developed countries, devoted to value creation accrued to clients and the relationships between

commercial banks and its clients. Based on the existing empirical studies, Ongena and Smith (1998:24) state that there is a need to better understand the impact of bank relationships on bank performance. This compelling idea encourages researchers to further study the impact of bank relationships on micro-bank performance. Bank relationship studies assume that the longer the duration of bank links with clients, the stronger the bank relationships that in turn create value for both parties. The economic and financial studies of bank relationships pay much attention to the events screening, monitoring, and likelihood to exit or switch, in which information is assumed acquired during the duration of a relationship and the process is treated like a black box.

Little is known about the relationship development process in financial literature. Dwyer et al. (1987) describe these processes in a model of relationship marketing where relationships evolve through five general processes: (1) awareness, (2) exploration, (3) expansion, (4) commitment, and (5) dissolution. The studies on relationship marketing focus on the relationship development processes to find out ways to achieve lower rates of customer defection or higher rates of client retention. After a comprehensive review of 26 definitions of relationship marketing, Harker (1999) proposed the following description of relationship marketing:

An organizational engage in proactively creating, developing, and maintaining committed, interactive and profitable exchanges with selected customers (partners) over time engaged in relationship exchange.

In short, relationship marketing is the establishment and maintenance of long-term (“duration”) buyer–seller relationships (Reinartz and Kumar, 2003). The definition of relationship marketing is an expression of its objectives as stated by Gröroos (1994) that is “... establishing, maintaining and enhancing relationships with customers, at a profit, so that the objectives of the parties are met.”

The duration of a relationship is confined by two events: the acquisition of new clients and the termination of existing clients. These two events are part of client turnover. The basic premise of relationship marketing is as follows. By attracting and acquiring new clients through a screening process, banks spend money and time. Healy (1999) argues that getting new customers is about six times more expensive than retaining the ones already in place. It is financially more lucrative to retain existing clients than to attract new ones² caused by the decreasing costs of client relationships over time. Empirical evidence from U.S.A. credit card

² Dibb and Meadows (2001) quote it from Perrien et al. (1993).

research³ showed that a 5% increase in customer retention rate led to a 60% increase in company profits. Lindgreen et al. (2000:295) claim that it can be (up to) ten times more expensive to win a customer than to retain a customer, and the cost of bringing a new customer to the same level of probability as the lost one is up to 16 times more expensive. The higher the level of customer satisfaction leads to greater customer loyalty (Anderson et al., 1997; Anderson and Sullivan, 1993; Bearden and Teel, 1983). Through increasing loyalty, it is argued, customer satisfaction helps to secure future revenues (Rust and Zahorik, 1993).

Consistent with these ideas, Abratt and Russell (1999) classify seven major themes that have emerged in relationship marketing literature. One of the themes is about retention, i.e.:

The understanding of the economics of customer retention is to ensure the appropriate allocation of resources. This involves targeting certain profitable customers. Client knowledge will assist banks in **retaining** their existing, **profitable clients** which are more economically viable than getting new clients. These existing clients are said to be **less price sensitive** and are likely to recommend the bank to friends and colleagues.

From four banks in the case study research, Dibb and Meadow (2001) have found that relationship marketing is a strategy in gaining competitive advantages underlying rapidly changing competition in the banking industry. The problem is how to prevent the most valuable customers from withdrawing from one bank and switching to a competing bank. Relationship marketing can solve this problem by formally or informally establishing Client Relationship Management (CRM). The CRM is responsible for devising a strategy to build long-term customer loyalty to retain customers. Sheshunoff (1999) defines CRM as organizing your bank around the needs of your most valuable (read “profitable”) customers.

Given the existing CRM, there is the fact that a bank still faces the likelihood of customer defection. Holmlud and Kock (1996) argue that there is a possibility that a dissatisfied customer will start searching for another bank that offers similar services, resulting in a break in the relationship with the bank. Dissatisfaction partly explains customer defection. Healy (1999) explains that “satisfied” customers represent the largest percentage of defectors. Underlying the competitive market in the banking industry, the defectors are those customers who are routinely lured away by competing banks through a variety of incentives, real and perceived. The estimated disengagement rate of these customers with the incumbent bank is about 40%. He suggests different strategies are required to retain customers who defect due to dissatisfaction and those who are lured away by competitors.

³ Op cit

Therefore, bank relationships and relationship marketing are complementary concepts to support sustainable bank performance. Conceptually, bank relationships, relationship marketing, and the sustainability of bank performance have common ground. They are concerned with the long term continuity of the business relationship. Hence, a general hypothesis can be stated that bank relationships and relationship marketing are prerequisites for sustainable bank performance. The duration of a relationship is important to improving the sustainability of bank performance. However, the duration per se does not reveal anything, except it must be managed through relationship marketing. The duration of a relationship has its own dynamics, which at any point in time there is a risk of break up. Jap and Ganesans (2000) are also concerned with the need to incorporate dynamic effects throughout the duration of the customer-firm relationship. Dowling and Uncles (1997) are concerned with the need to cater to specific customers rather than all possible customers.

As relationship marketing emphasizes maintaining long-term relationships with banks, banks have to detect as early as possible their high quality clients' propensity to switch to a rival lender. When the defection intention of a client is discerned by a bank at an early stage, appropriate actions should be taken. The clients actually not only consider perceived benefits from the incumbent bank and rival banks, but also possible switching (substitution) costs. During the defection intention period, a renegotiation of more favorable terms and conditions can be arranged to retain existing clients. To execute this program, an organization structure is implemented by a responsible person such as loan officer to take care of the relationship with clients, as the person has to be part of the overall customer relationship management. From the perspectives outlined above, testable hypotheses will be developed that are simultaneously translated into hypothesized models in section 2.11. The hypothesized models will answer the third and fourth research questions through explanatory studies (Chapter 7 and Chapter 8) following two exploratory studies (Chapter 4 and Chapter 5) that deals with first and second research questions. These chapters can capture part of the complex processes of a bank and client relationship. On top of these four chapters, Chapter 9 will delve into the complex processes of a bank relationship. The following short explanation expresses the complexity of the relationship between a bank and its clients.

According to Berger and Udell (2002), relationship lending requires more authority to be given to the loan officer, who has the greatest access to soft information but is accompanied by a layer or hierarchy of contract and loan reviews to reduce agency problems between banks and loan officers. The smaller banks tend to rely on relationships rather than transactional exchanges. However, as financial intermediaries the small banks face challenges in managing

and organizing not only on the loan side, but also in funding (deposit side) - the assets and liabilities management (ALMA). Within the framework of principal-agent relationships, a broader perspective on management and organizational settings to handle relationships between banks and their clients has to be found. Relationship marketing literature offers a potential solution. Homburg et al. (2002) propose an integration of key account management (KAM) and define key constructs in four areas: (1) activities, (2) actors, (3) resources, and (4) approach formalization. Furthermore, Bendapudi and Leone (2002) found that in many cases, customer (client) relationships with key contact employees are stronger than their relationships with their firms (banks) themselves. Consequently, the key contact employee (loan officer) turnover affects the customer-bank relationships. In the case of bank consolidation, Berger and Udell (2002) detect a possible movement of loan officers from consolidating banks to other local banks and keep relationships with the existing clients.

A more detailed study on interactions between employees and clients came to some conclusions, such as “happy staff members equal happy customers” (Ballantyne, 2000). There is a direct positive correlation between job satisfaction and customer satisfaction. However, a transfer mechanism study says that the mechanism by which job satisfaction translates into customer satisfaction is not well understood. Job satisfaction leading to customer satisfaction may be: (1) a direct relationship or (2) mediated by a service provider’s (independent channel) performance or customer perceptions of quality, etc., (Ballantyne, 2000; Bernhardt et al., 2000; Brown and Chin, 2004; Pugh, 2001).

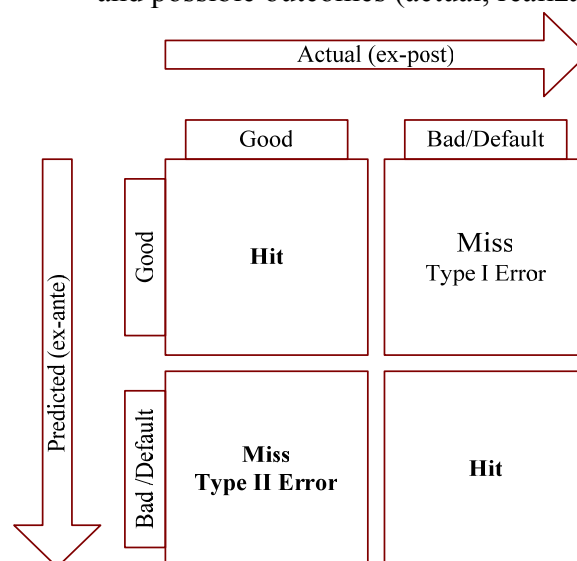
2.4 Asymmetric Information, Decision Making Under Risk, and Risk Management

In general, the credit market diverges from an idealized perfect financial market because of the existence of informational asymmetries, transactional costs, costly financial distress of a bank or client, tax and agency problems, etc. Within a market with asymmetric information, potential small borrowers may have an incentive to understate their default risks or overstate the proposed loan size intentionally when applying for a loan. The lender (bank) is unable to differentiate between “honest” and “dishonest” borrowers. This gives the lender an incentive to ration credit for the perceived high-risk borrowers. SMEs normally lack historical records related to financial and non financial relevant information. It makes it difficult for the potential lender to assess the feasibility of proposed credit by SMEs. In screening of proposed credit, the potential lender is confronted with a great deal of uncertainty – which results in higher risks in making credit granting decisions.

This condition leads to adverse selection and moral hazard problems. The adverse selection problem exists prior to (before the deal) the credit granting decision. Potential borrowers differ in their credit worthiness. But the bank tends to offer the same interest rates to all borrowers whenever it cannot determine the credit worthiness of each potential borrower. By deciding to set a single interest rate, banks can face “lemon problem” as good clients are not interested to be debtors of the bank. The poor credit risk applicants (“the lemon”) may accept higher loan interest rates than good credit risk applicants. Banks will find that when they raise their loan interest rates, good applicants will drop out of the process and bad applicants will stay in. The probability of facing a type I error or the default rates of loans will increase leading to a lower expected monetary pay off. However, when a bank keeps the loan interest rate at a prevailing rate, the excess demand for loans can lead to credit rationing.

In decision theory, the objective for a bank in making credit decisions is to maximize the expected monetary payoffs (Foster, 1978), that is maximize an outcome of the credit decision. An outcome of the decision is the result (ex-post) of the credit granting decision, that is the monetary payoff, which is in the form of cash inflow from regular repayments of principal and interest of all clients. In credit investigations and screening processes, a loan (account) officer gives an evaluation analysis of the credit proposal based on the limited, relevant available information.

Figure 2-2: Classification matrix of loan decisions (actions) and possible outcomes (actual, realization)



By evaluating the would-be debtor, the officer makes an estimate or prediction (ex-ante) that the clients belong to either a good or bad category. In other words, the categorization of the

would-be debtors depends on their “creditworthiness”, that is, the likelihood they will repay their bank loans in the future. Based on that, credit will be granted to the predicted good category (creditworthy) of clients or will be rejected if the debtor candidates are categorized as being bad or non creditworthy (Figure 2-2).

This typical problem is identical to what is known as an adverse selection problem. Thus, according to Foster the objective of a bank can be formulated as to maximize the total of the expected value of cash inflow from the principal and the interest from both good and bad clients minus the cash outflow write-offs of bad credit and the expense of collecting bad credit.

While Altman (1993:261) emphasizes more on the loan officers’ objectives, that is to minimize the cost of misclassification errors, which consist of costs involving making loans to clients, who eventually default their obligations (C_1 , type I error), and the cost (lost sales) of not giving loans to clients that would have repaid successfully (C_2 , type II error). In reality, banks only pay attention to C_1 because it is recorded in accountancy and it will directly influence the short run recorded profit of the bank. The credit committee will decide to accept a loan proposal and disburse loan money if the would-be debtor is considered good. After the realization of the credit, there can be two possibilities that are the client is indeed good (Hit) or bad (type I error). The cost of making a wrong decision, C_2 , is not recorded in the accounting report. However, in business strategy, it is a missed opportunity which makes the bank suffer from a long term financial loss. Given two possible simplified alternative decisions, all types of errors are credit risks to banks. In fact, a bank has a list of mutually exclusive alternatives available rather than two alternatives of either offering grants or rejecting credit proposals. In this case, banks can determine alternatives to (a) rejecting the credit request or (b) approving the credit request with various combinations of interest rate, amount of principal, tenor or maturity date, amount and what kind of collateral, etc.

The second asymmetric information problem is a moral hazard problem that occurs after the loan decision and disbursement of credit take place. The moral hazard is an ex-post problem, in which borrowers may divert loans to more risky projects with higher expected returns. Banks believe that every additional kind of relevant information will improve the degree of confidence in deciding and, in turn, decrease the credit risks arising from adverse selection and moral hazards. Nevertheless, additional information gathering is rarely free. Complete information is simply unavailable, but the credit committee has to consider all possible alternatives and outcomes and make decisions. Herbert Simon (Stoner and Freeman, 1989:175-177) prepossessed a theory of “bounded rationality” that is closer to reality. Real-life decision makers must cope with some constraints:

1. Inadequate or incomplete information about the nature of the problem and its possible solution, or about possible courses of actions and outcomes.
2. The lack of time and money to compile more complete information.
3. Distorted perceptions of information available.
4. The inability of the human memory to retain large amounts of information
5. The limits of their own intelligence to determine correctly which alternative is best.

Instead of searching for perfect or ideal decisions to achieve an optimal outcome, managers frequently settle for a decision that achieves satisfactory outcomes.

Given the fact that banks face credit risks, they have to manage risks by diversifying their loan portfolios that can potentially reduce their credit risks. A lack of diversification is expressed in the risks of well diversified portfolios that depend on the market risks (systematic risks) of the securities included in the portfolio. The market risks reflect a general movement of market return on portfolio investments. A risk that potentially can be eliminated by diversification is called unique risk (unsystematic risk), a risk that is peculiar to a specific business (Brealey and Myers, 2001).

The portfolio theory broadly implies that a lender should not care about the risk characteristics of its individual loans, but about the risks of its overall returns (Billet et al., 1995:702). However, banks operate under governmental regulations that dictate their choices in the amount and allocation of loans. For example, the legal lending limit and bank capital adequacy obligate a bank to choose the amount of the loan portfolio. Diversification can be related to the spread of the locations of the debtors geographically, the kinds of debtor businesses, and the aims for using the credit. Thus, risk management should be started before the credit expansion program and credit screening. In this phase, banks calculate the possibility of having bad credit.

After a credit extension decision, a debtor obtains the funds and the bank bears the possible credit risk problems of an extended loan. In this phase, monitoring, providing incentives, and giving penalties for clients to induce timely repayments become important. In order to maximize recovery of bad credit, some MFIs provide incentives for timely repayment (or repaid early) such as: (a) giving rebates of interest on loans (e.g., BRI Units), (b) providing dynamic or progressive lending, in which borrowers are eligible to gain access to bigger loans, and (c) other sources of value in a relationship. The mechanisms to ensure high repayment should also discourage strategic default. Peer group lending methods of Grameen Bank (Bangladesh) employ peer group selection and monitoring to achieve a higher repayment rate. Meanwhile, the individual lending of, for example, Bank Rakyat Indonesia tends to use progressive lending methods to discourage strategic default (Mosley, 1996). Progressive

lending works as a mechanism to secure high repayment rates, in which loan officers get to know clients overtime through repeated interactions, with small loan sizes at the beginning of a relationship and increasing loan sizes conditional on high repayment rates. In principle, Boot and Takhor (2000) state that to be denied additional credit for default is a strong incentive for borrowers to do everything in their power to repay the loan. However, the default today (for an unintentional defaulter) does not mean a lifetime without credit, instead of imposing rules of dynamic incentives (or progressive lending) at face value. A bank relationship facilitates a renegotiation of credit terms as long as a client still has prospects. In case a relationship lending has a clear end (e.g., in the case of bank bankruptcy and liquidation) borrowers under collateralized have incentives to default.

Boot (2000) emphasizes that the dynamic incentives work well under conditions of relatively low mobility (switching) of borrowers and the banks have relatively stronger market power. A bank's market power is about the ability of a bank to set high switching costs to clients and its ability to extract economic rent. Furthermore, relationship lending may implicitly guarantee borrowers uninterrupted access to credit availability in the future. However, some believe that high competition in the loan market may threaten the bank relationships, while others argue just the opposite. The first view argues that under severe banking competition, borrowers have more alternative banks and might be tempted to switch to other banks. The second view argues that a competitive environment may create creativity where banks become more client-driven to meet client needs in promoting satisfaction that potentially prevents client switching.

2.5. Asymmetric Information and Tacit Knowledge

Section 2.5. discusses the implications of an imperfect financial market, in which a bank faces a risk of default of extended credit. The underlying focus is about the theory of market with asymmetric information. The foundations of this theory were established in the 1970s by three researchers, namely, George Akerlof, Michael Spence, and Joseph Stiglitz – the Nobel prizewinner in 2001. Throughout the discussions on theoretical and empirical reviews, some different terms may be used to refer to the same economic and social phenomenon. In this context, there are some interrelated, complementary, and substitute terms that need more elaboration and clarification. Among the terms are soft information and tacit knowledge, information and knowledge. Information about small borrowers, either low income households or SMEs, is considered to be “soft” (e.g. Berger et. Al, 2001; Berger and Udell, 2002). Soft

information of these clients leads to the existence of asymmetric information among parties (economic agents) in transactional and relational business exchanges. In the loan market, asymmetric information means that agents (borrowers) on one side of the market have better information than those (lenders or banks) on the other side. At the beginning of a relationship, borrowers know more than lenders about their repayment prospects. At this point, borrowers are well-informed economic agents and lenders are poorly-informed economic agents. Asymmetric information problems diminish as repeated interactions in a bank relationship progress and banks become the “insiders” of the borrowers.

Petersen and Rajan (2002) describe soft information as being identical with “tacit” information that refers to tacit knowledge promoted by Polanyi (1958). Soft information is information that is hard to communicate to others, let alone capture in written documents. In this case, Petersen and Rajan admit information and knowledge are similar. Michael Polanyi (1964) wrote a book entitled “The Tacit Dimension” that contains his basic enquiries of tacit knowledge. The term tacit knowledge is a concept adapted from his experience and observations, which ends up with the conclusion that “we know more than we can tell”. Barer and Stein (1989) describe this phenomenon as the paradox of internalizing, i.e. “the better you know something, the less aware you are of knowing it”. However, information and knowledge are not always seen as identical. Jarboe (2001:2) defined that knowledge as information combined with experience, context, interpretation, and reflection. It is high-value information that is ready to apply to decisions and actions. In line with Jarboe, Alwis et al. (2003:4) define knowledge as information with significant human value added. As it is explained in section 2.4. information is the basis of making decisions. Nonaka et al., (2000) distinguish information from knowledge by explaining that information becomes knowledge when it is interpreted by individuals, given a context, anchored in the beliefs and commitments of individuals.

Moreover, Hovart (adapted from Alwis et al. 2003) differentiates knowledge from information only with reference to particular intended use in a written note in this following example (Table 2-3):

Table 2-3: Knowledge and information in the context of a value chain

Description	Represent	From the perspective of:
<ul style="list-style-type: none"> • Medical drugs accompanied by printed package inserts: 	<ul style="list-style-type: none"> • Knowledge 	<ul style="list-style-type: none"> • Scientists and regulators
<ul style="list-style-type: none"> • It describes indications and contraindications, dosage instructions, and possible side effects. 	<ul style="list-style-type: none"> • Information 	<ul style="list-style-type: none"> • Physician

It is clear that in knowledge-management circles, information is conceptually different from knowledge but practically each of these terms may be used interchangeably to refer to specific phenomenon (see Table 2-3). Moreover, in a financial market, the information may be distinguished into private and public information. The private information is normally associated with soft information. While in knowledge management, knowledge consists of tacit knowledge and explicit knowledge. Tacit knowledge is embedded in the minds of people and is by definition difficult to write down or communicate. It exists in individuals and groups, and is created and accumulated through repeated working experiences and/or experiments. Explicit knowledge is knowledge that can be, or has been written down or captured on some persistent media (video, web, documents).

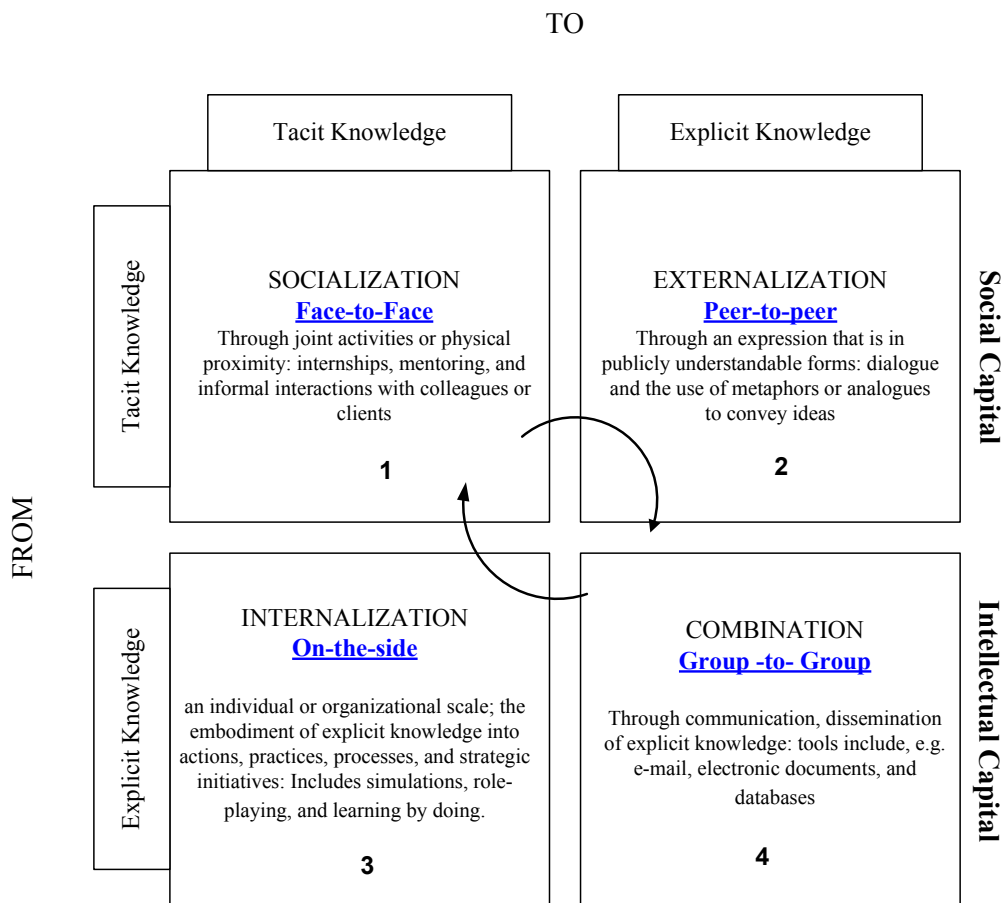
The phrase “tacit knowledge” is used in many fields of research and activities implying that the concept is a broad applicability and relevance (Gourlay, 2002). If the properties of tacit knowledge are learned, they can be related to asymmetric information. As an example, tacit knowledge and asymmetric information have a similarity in a characteristic, such as the first one being privately available and the second one being publicly available. Therefore, tacit knowledge can also be used to explain the conditions of asymmetric information.

2.6. Organizational Learning and Knowledge Management

Organizational learning means the process of improving actions through better knowledge and understanding (Fiol and Lyles, 1985). Organizational learning is a process of detecting and correcting errors (Argyris, 1999). Tacit (implicit) knowledge is increasingly considered as an essential dimension of organizational learning and knowledge management. Organizational learning is a subset of knowledge management. Therefore, they have something in common, especially in knowledge conversion as suggested by Nonaka (1997) in the four modes of knowledge conversion (Figure 2-3).

Although it is difficult to codify, standardize, transfer, and hard to formalize and communicate tacit knowledge, Nonaka (Figure 2-3) shows there are four possible ways of knowledge conversion between tacit knowledge and explicit knowledge. Knowledge conversion occurs through organizational learning (OL). Hence, organizational learning reinforces the role of bank relationships and relationship marketing concepts in achieving sustainable performance. All of the concepts are concerned with the duration of a relationship between a bank and its clients. The bank relationship simply assumes that the longer the duration of a relationship, the more opportunities there are to transfer explicit and tacit knowledge to overcome asymmetric information problems.

Figure 2-3: SECI process of knowledge creation⁴



Source: AIA Knowledge Creators' Tool Kit Version 1.1. (May 1, 2003)

Meanwhile, relationship marketing and organizational learning go beyond that. These two concepts are concerned with the intensity of a relationship, such as the frequency of face-to-face communication between a bank and its clients that result in more intensive transferring of tacit and explicit knowledge or information between parties.

Knowledge acquisition or generation refers to the learning process as either incorporating knowledge from outside the organization or creating knowledge inside the organization, mostly by trial and error.

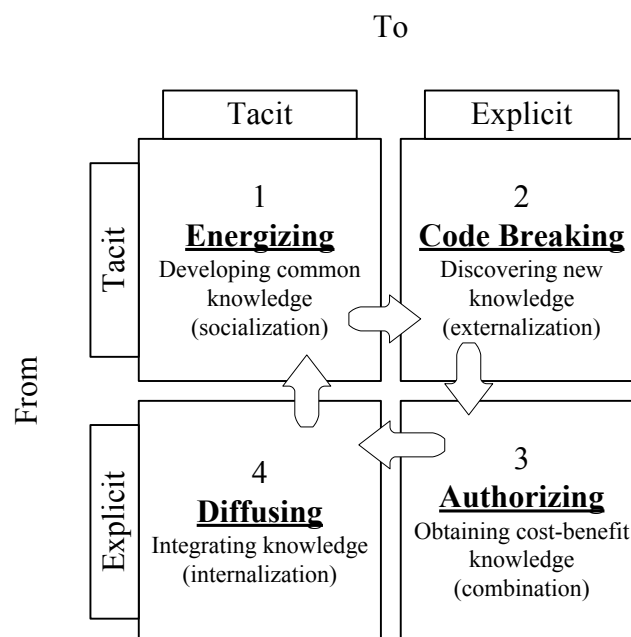
Organizational learning, total quality control and internal (relationship) marketing belong to a family of learning activities (see Argyris, 1999; Ballantyne, 2000). For example, Ballantyne (2000) makes a connection between learning activities and knowledge renewal. He describes internal (relationship) marketing as a model of a learning activity that embraces four elements:

⁴ Adapted from the work of Ikujiro Nonaka

1. **Energizing**: learning how to work together on useful marketplace goals that are broader than the bounds of any individual job description.
2. **Code breaking**: learning how to apply personal resources of “know-how” in working together to solve customer problems, create new opportunities, and change internal procedures.
3. **Authorizing**: learning to make choices between options on a cost-benefit basis and gaining approval from the appropriate line of authority.
4. **Diffusing**: learning how to circulate and share new knowledge across managerial domains in new ways.

Internal marketing is parallel with Nonaka and Takeuchi’s four-phase theory of knowledge creation as depicted in Figure 2-4.

Figure 2-4: Internal marketing as knowledge renewal



Source : Ballantine (2000: 28-282)

A cycle of activity for knowledge renewal is the other side of the cycle of organization learning and overall, this would contribute to customer retention and better long-term profitability (Ballantyne, 2000:277).

2.8 Changes in Economic Environments: The Dynamic Aspects

The operation of a financial system depends on the overall economic activities and financial institutions that are significantly affected by macroeconomic changes. The macroeconomic changes may follow a business cycle that drives the expansion and reduction of credit demand, affecting the financial healthiness of the banking system. According to policy makers in the USA (Gonzales – Hermosilo, 1999), there is a life cycle of bank failures. After rapid loan growth, banks may encounter rising loan quality problems that deteriorate the asset

quality of a bank leading to bank failure. As real economic sectors recover, banks will likely be able to recover as well. This view implies that banking failure recurrences are a common phenomenon in any country around the world.

Disruptive forces of systemic banking crises lead to currency crises that can worsen the banking industry. Financial liberalization contributes to banking crises. These two types of crises tend to cluster, which are known as “twin crises” (Kaminsky and Reinhart, 1999). The twin crises can activate further crises – economic crises, political crises, and social – cultural crises as multi-dimensional crises. It takes much time and has costly impacts for a resolution.

The effect of monetary policy on the lending behavior of individual banks is one of the interesting studies on the monetary transmission mechanism. From the so called “bank lending view” of monetary policy, a lending business may respond to a tight money policy. When policy is tightened, both total loans and business loans at small banks fall, while loans at large banks are unaffected (Kahyap and Stein, 2000). Fundamental change in the behavior of banks and client firms is actually not only confined to changes in monetary policy but also by broader external environmental changes. The economic environmental changes can come from many aspects, they are; (1) technological innovations e.g. securitization of SMEs, credit rating information processing, etc., (2) regulatory regime shifts e.g., the implementation of risk-based capital under Basel Accord, tougher or prudential supervisory standards and regulations or relaxing supervisory standards, tight money policy (TMP), (3) a shift in competitive condition e.g., banking consolidation, entry barrier relaxation, and (4) changes in the macroeconomic environment e.g. structural changes that lead to deterioration in creditworthiness due to drops in real estate prices and disruptions in the supply and demand of real products. This leads to a reduction in the value of collateral, downgrading in credit score, etc. A heavy and sudden change in the economic environment, such as the twin crises: balance of payment and currency crisis or financial crisis may disrupt the majority of economic activities. Each of the economic agents, such as banks, client firms, and their investors may react differently to a specific event related to the economic environmental changes mentioned above. There are three types of factors (Elsas, 1998) that may affect the decision of firm borrowers and banks (see e.g., Boot, 2000; Boot and Thakor, 2000) to engage in relationship lending, which are:

1. Borrower (firms) characteristics, e.g., size, quality and fragility, informational opaqueness, access to bank or public debts/equity, transparency, etc.
2. Bank characteristics e.g. types of banks, size, financial health, control of ownership, etc.
3. Market characteristics and macroeconomic conditions.

Relationship lending is supposed to be a long-term implicit contract between a bank and its debtors or borrowers. Those events may disrupt this relationship.

Further impact of shock to macroeconomic may create financial fragility leading to healthiness of banks and firms. The banks/firms' financial fragility, in which they can move (migrate) from being healthy to unhealthy financially, can disrupt their relationships. Foglia, Laiolan and Reedz (1998) and supported by Farinha and Santos (2002) address the behavior of banks on the client-firm fragility where, according to the bank-diversification hypothesis, they found that multiple borrowing is desirable to share risks to diversify their loan portfolios. The implication of this result is that deciding to seek financing from other banks is likely to be a highly negative signal of firm quality. Bae et al. (2002) disclose research findings that bank failures can affect a firm's financial performance and vice versa. Those firms that can maintain multiple bank relationships can diversify the risks of bank financial distress. Bae et al. came to the conclusion that the financial health of both banks and client firms is important in maintaining the benefits of bank relationships.

In addition to the discussion, the following phenomenon might be given a broader view of the firms' and banks' behavior in response to their environmental changes. In response to higher real interest rates or a negative real shock, models of credit market with imperfect information and heterogeneous borrowers generally predict a "flight to quality" by financial intermediaries. This flight to quality implies a shift in bank assets (portfolio adjustment) toward government securities and/ or relatively safe loans. Lang and Nakamura (1995) found that there is a rise in the relative quantity of safe loans, which precedes the recessionary period movement in both real GNP and inventory movement. When banks are hit by a negative shock and forced to curtail their lending, banks will allocate their portfolios toward more opaque and more captured borrowers. This reallocation is called a "flight to captivity", which may coexist with the "flight to quality", where banks faced with increased market interest rates tend to be reduced to lower quality borrowers. The coexistence of credit reallocation in the form of "flight to quality" and "flight to captivity" works as follows. When a bank is hit by a negative shock, the interest rate increases followed by a reduction in the supply of credit; it reduces lending to lower quality borrowers (flight to quality). At the same time, the more transparent firms are more sensitive to an increase in interest rates. These firms have a more elastic demand of credit, and have easier access to alternative sources of financing. The creditworthy and more informationally opaque (SMEs) borrowers will have a less elastic demand curve for bank credits. The final outcome is the more informally opaque businesses are, the more captive borrows are kept as firm clients and the more transparent firms leave for other financial

institutions (Dell'Araccia and Marquez, 2001). The existence of a guarantee mechanism e.g. in the USA, shows that there is a chance that SMEs may receive loan guarantees that may prevent a negative impact from the effect of reallocation (Hayes, 1995).

2.8 Alternative Dimensions of MFIs' Performance

Recently, diverse performance dimensions or indicators of a business are available and ready to use. Their existence implies creativity but increases the complexity and lack of parsimony that leads to confusion. A perplexing variety of indicators have been used to measure business performance around the world.

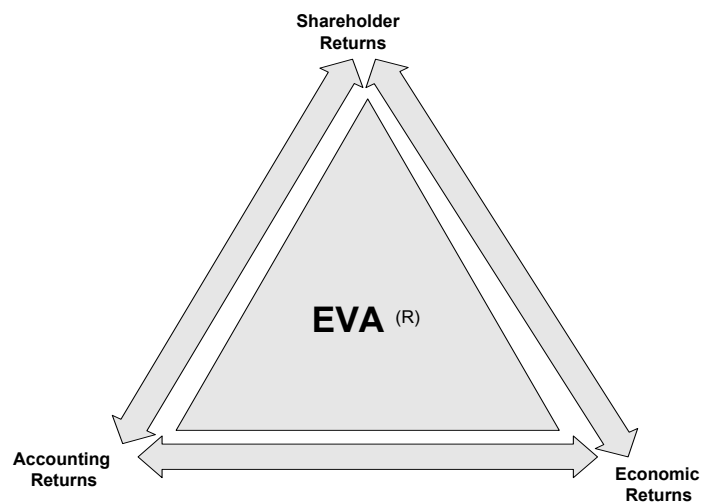
In the 1990s, Yaron introduced two performance indicators of MFIs, i.e., (a) financial self-sustainability and (b) substantial outreach to the rural population target. These criteria have been used to assess the performance of four MFIs generally considered as being successful: BAAC in Thailand, BKK and BRI-Unit in Indonesia, and the GB in Bangladesh (Yaron, 1994). Khandker et al. (1994, 1995), and Mosley (1996) implemented and enriched these performance indicators for some MFIs in Bangladesh (GB), Indonesia (P4K, PHBL, BKK, and BRI), and Bolivia (PRODEM). Financial self-sustainability is achieved when return on equity, net of any subsidy received, equals or exceeds the opportunity costs of funds. A multivariate index, known as a Subsidy Dependence Index (SDI), is employed to access the self-sustainability where the subsidy dependence is the inverse of self-sustainability. The lower the SDI, the more self-sustainable of the bank performance. The formula has an implicit assumption that there is a subsidy from shareholders and return on equity is assumed equal to market interest rates on funds. There are two types of subsidies.

1. A financial subsidy is a subsidy to support operating activities when a bank is not cost effective in running a program.
2. Economic subsidy = (Opportunity costs of funds – Costs of funds in lending). An economic subsidy can be divided into interest rate subsidies (or financial subsidies), equity subsidies, and income subsidies.

Khandker et al. (1995:47) extend the formula with the Subsidy Dependence Ratio (SDR). While the SDI evaluates subsidies against interest income only, the SDR evaluates subsidy dependence in terms of income earned from all productive assets. The MFIs may diversify in their loan portfolio investments and other alternative investments or other earning assets. However, further details of sustainability are decomposed into four dimensions, which are (a) financial viability, (b) economic viability, (c) institutional viability, and (d) borrower viability. On one hand, the extension of the sustainability measure gives a more comprehensive assessment of the MFIs' performance, but on the other hand it creates more complicated

measurements. Seibel (1989) explains viability in a nutshell as what it takes to attain MFIs viability, comprising positive real interest rates on loans, positive real interest on savings deposits, high timely repayment rates, a high degree of self-financing from internal resources, appropriate microfinance products and services, and vigorous striving for a profit margin. Since the main element of sustainability is the long run continuity of the company, the monitoring of corporate performance in the course of their daily operations becomes important. Business performance is a value creation, and it worth knowing as an economic value added concept (Figure 2-5).

Figure 2-5: The triangle of economic value added



Economic Value Added (EVA⁵) is an estimator for a company's true economic creation, residual income, or economic profit. EVA is the net income after deducting the monetary value return required by investors (stockholders and debt holders). EVA is clearly better than earnings or earning growth for measuring performance. Weaver (2001) depicts EVA as the direct missing link to the three corporate returns. This triangle is extracted from the idea of Ehrbar (1988), who believes there are clear links between strategic thinking, capital investments (economic returns), operating decisions (accounting returns), and shareholder value (shareholder returns).

Logic behind the EVA and SDI analysis seems to have similarities in focusing on economic performance rather than accounting performance. Schreiner (1997) notices the EVA as SDI for profitable firms. Both of them use shadow prices with accounting data to measure

⁵ Registered by the consulting firm Stern-Stewart (USA).

performance. They answer the question of whether wealth is created or destroyed through the use of capital in the firm instead of elsewhere.

A worldwide accepted and more formal way of measuring bank performance is through the CAMELS approach. Hilbers et al. (2000) describe the *CAMELS framework* as one commonly used framework for analyzing the health of individual institutions and looks at six major aspects of a financial institution: capital adequacy, asset quality, management soundness, earnings, liquidity, and sensitivity to market risks.

All constructed indicators of business performance concepts mentioned above are an exhaustive list of types of business performance, and in particular bank performance, but they give a broader view of a wide range of ways of making something operational for bank performance concepts. However, there is neither a single agreed upon nor a widespread definition of a successful MFI. Moreover, Steinward (2001) claims that there is a simple but sound measurement of MFI performance in Indonesia. The parsimonious indicators from the financial system perspective of sustainable growth are the most appropriate criteria to measure BPR performance. There are three proxies of sustainable growth: (1) increase in total assets, (2) **increase** loan performance, and (3) improve profitability. The first sustainability indicator displays an increasing good reputation of BPRs from depositors who entrust their funds to BPRs. The second and the third indicators stand for counter weight and asset growth.

Table 2-4: Alternative measurement indicators of microfinance performance according to the Asia Foundation

No.	General Accepted Measure	The Asia Foundation Research	Reasons
1	Return on Equity (ROE)	(1) Loan to Deposit Ratio (LDR) (2) Expenditure to Income	(1) The branch offices do not have equity capital. (2) It is difficult to distinguish between the capital from the bank's owner and the capital derived from the bank's depositors, especially for BPRS.
2	Return on Assets (ROA)	(1) Profit (loss) to credits granted	(3) There is no clear cut definition of assets in non bank microfinance institutions (e.g. Fixed assets are considered the only assets.)

Source: The Asia Foundation, (2003)

These two indicators interlock with each other through write-off mechanisms of reserve requirements of non performing loans. Higher write-offs may reduce profits substantially, but increase (net) loan performance. A rapid growth of the asset base can be sustainable if earnings and or equity are not wiped out by high default rates.

Martowijoyo (2003) uses three MFI performance indicators in his research in Indonesia, which are: (1) operational self-sufficiency, - inverse loan to deposit ratios, in other words the deposit to loan ratio, (2) financial self-sufficiency, that is, the margin per rupiah lent or interest income minus operating income to outstanding loan ratio, and (3) profitability, that is, the ratio of net profit before taxes over outstanding loans. In another research in Indonesia, The Asia Foundation (2003) and Ramage et al (2003) use some indicators of MFIs' financial performance (Table 2-4). Moreover, researchers may find a problem of equity magnitude when calculating the return on equity (ROE). The BPR semiannual equity capital publications do not always reflect a real equity value financially. For instance, the placement of new money by a stockholder is not immediately considered as equity by Bank Indonesia. The new money may be treated as subordinated debt, until it is proved that it is not from borrowing. It is also a problem when dealing with the deposits of a sharia BPR, in which the deposits are similar to equity from the risk bearing characteristics, at least conceptually.

2.9 The Islamic Bank: “Interest-Free Banking”

In 2001, the assets of worldwide Islamic financial institutions were US \$230 billion, which were more than a 40-fold increase since 1982. Most of the large Western financial institutions, following the example of Citibank, have their own Islamic subsidiaries or, at the very least, Islamic “windows” or products aimed at their Islamic clientele. As a proof of how many companies are compatible with Islamic law- and not just from within the Moslem world- there is now even a Dow Jones Islamic market index (Warde, 2001).

The most distinctive characteristic of Islamic banking (also known as sharia bank) is the prohibition of *riba* that implies a ban on interest, which is any predetermined or fixed return in a financial transaction. Alternative “interest-free” funding and financing techniques have been based on two principles: (1) the profit and loss sharing (PLS) and (2) the mark-up principle. The PLS principle has two categories of instruments of *mudarabah* financing and *musharaka* financing. These categories are equity-like financing. The second principle is implemented through some techniques in which a bank finances the purchase of assets in exchange for a negotiated profit margin. Mark-up instruments are widely used, but they trigger debate since these techniques imply a fixed return on investments for banks as debt-like instruments. The instruments include *murabaha*, *ba'i as-salam*, *bai' bisaman ajil* or *ba'i salam*, and *ijarah wa*

*iqtina*⁶. In other words, sharia bank products cover the whole range of products of conventional banks and multi finance companies (venture capital and leasing).

A study undertaken by Aggarwal and Yousef (2000) out of available data from the International Association of Islamic Banks, resulted in evidence that Islamic banks rarely offer long-term financing to entrepreneurs seeking capital. Islamic banks rely much more heavily on mark-up financing than PLS financing. Consistent with this study, Errico and Farahbaksh (1998) conclude that Islamic banking in actual practice diverges markedly from its paradigm version and is carried out in a variety of ways that lie somewhere in between the benchmark case and conventional banking. The degree of divergence from the benchmark differs from country to country. Ray (1998) explains that some Islamic banks also practice *hidden interest* rate charges while the loan is outstanding, which is acceptable under a law that bans explicit usury. Furthermore, Dar and Presley (2001) cited that according to the International Association of Islamic Banks, PLS covered less than 20% of investments made by Islamic banks worldwide (1996 figures). Likewise, the Islamic Development Bank (IDB) has so far not used PLS in its financial business, except in a few small projects.

The spirit in implementing Islamic banks, extended to SME financing as explained by Dhumale and Sapcanin (1999) is represented in Table 2-5.

Table 2-5: Islamic finance models and their applicability to microfinance

Issue	<i>Mudaraba</i> (profit sharing)	<i>Murabaha</i> (buy-resell)
Most applicable for	Fixed assets (investment capital) and potentially working capital	Working capital and investment capital
Cost to borrowers	Potentially higher because of higher profit sharing with the microfinance program as a result of a higher risk	Lower
Initial acceptance by borrower	Higher	Lower
Risk to borrower	Lower if no predetermined minimum profit is allowed	Higher
Administrative costs	Administration is potentially complex, although this can be resolved by predetermining a minimum profit. Still, costs of loan administration and monitoring are high given the complexity of the repayment schedule	Initial transaction costs because of the large number of buy-sell transactions. Costs of loan administration and monitoring are substantially lower, however, because the repayment schedule is simple
Enforcement	Difficult if profit must be determined for each installment, because most borrowers do not keep sufficiently accurate accounts	Less difficult because the program owns the goods until the last installment paid

Source: Dhumale and Sapcanin, (1999, p.12)

⁶ See Dumale and Sapcanin (1999) *Murabaha* (cost-plus mark up) – is a common instrument for short-term financing based on purchase finance, *ba'i salam* (forward contract)- the buyer (bank) paying the seller (client) the fully negotiated price of a product that seller promise to deliver at a future date, and *ijarah wa iqtina* (leasing)

Islamic and conventional banks continue to coexist right up to the present. Islamic banks have a wide range of products and services beyond that of conventional banks. Constraints inhibiting the implementation of the Islamic banks' instruments may limit them in how they compete with conventional banks. Aggarwal and Yousef (2000) suggest that conventional banks may be more attractive to all types of entrepreneurs simply because they impose fewer non pecuniary costs such as religious restrictions on entrepreneurs. In other words, according to Visser (2004:75) applying Islamic principles in finance comes down to submitting additional economic activity restrictions. One lesson from economic studies is that restrictions or constraints always hurt an optimal solution. In order to observe executive compliance with relevant rules and regulations, a sharia bank has a sharia supervisory board and board of commissioners, while a conventional bank only has a board of commissioners. However, Visser (2004) explains that there are positive aspects as well. The sharia bank is a newcomer in Indonesia, a country where the population is predominantly Moslem. Bank Muamalat Indonesia (BMI), a sharia commercial bank founded in 1991, is the pioneer of sharia banks in Indonesia. The sharia commercial banks and sharia BPRs are supposed to have more opportunities than both conventional commercial banks and BPRs whenever they can promote both calculative (or business) relationships and affective relationships with the clients into mutually beneficial exchange for long term business exchanges. Although there is only a limited number of sharia BPRs in Central Java, it is interesting to know more about their survival and the possibility to utilize these two types of relationships in their businesses as a driver to include them in the study.

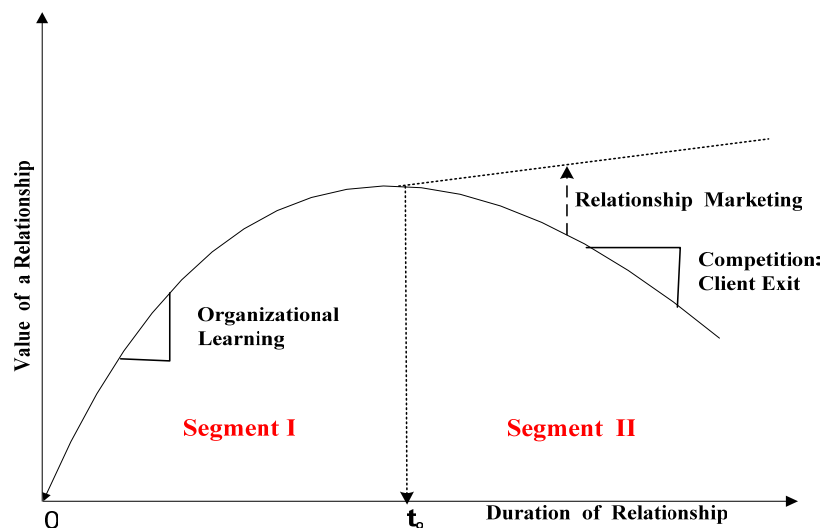
2.10 A Synthetic Model and Hypotheses

Insights into the empirical and theoretical literature on bank-client relationships, organizational learning, relationship marketing, and bank performance will be blended into integrative hypothesized models which are expressed in two forms: (a) a graph and (b) a diagram. First, integration between the main four concepts is based on two dimensions that become common characteristics that are: (1) duration of a relationship and (2) value of a relationship. In other words, both of these common characteristics become intersections or subsets of inclusion of each concept. It is important to remember that actually the main concepts have been developed as a branch of science that are separate from each other. Some efforts have been made to find out the impact of each concept separately on supplier performance. Ongena and Smith (1998) express their intention to better understand the impact of bank relationships on bank performance, Sadler-Smith et al., (2001) found out that

organizational learning affects the performance of small firms (sales growth). Empirical research focuses on the impact of relationship marketing on performance (see Anderson et al., 1994; Claro et al., 2003; Sin et al., 2002). These four main concepts will be integrated into a bank performance model. A client intention model will also be formulated to complement the first model.

First of all, marginal benefits and marginal barriers (section 2.3.4.) will be used as a starting point to build the bank performance model. Bornheim and Herbeck (1998) established the model based merely on bank-client relationship studies⁷. The bank performance model is expressed by the total (net) value of a bank relationship as a function of the duration of a relationship (Figure 2-6). The total net value of a bank relationship is the accumulation of marginal benefits minus marginal costs.

Figure 2-6: An abstraction of an integrative model of the value of a bank relationship curve (BCR curve)



Segment I (0 to t_0) implies that the total value of a bank relationship (bank performance) is increasing function of duration of a relationship. Segment II (the right side of t_0) implies that the total value of a bank relationship (bank performance) is decreasing function of duration of a relationship. This simplified model is based on the assumption that relationship exchanges between a bank and its clients create mutually beneficial of exchange. Along with a bank relationship, the role of organizational learning and relationship marketing as strategic instruments begin at the starting point in the duration of a relationship. However, it is assumed

⁷ The Bornheim and Herbeck (1998) model is used as an analogy only or as a basic logic to create a bank performance model, where a bank relationship, relationship marketing, and organizational learning play important roles in achieving sustainable bank performance.

that organizational learning dominates in segment I, while relationship marketing dominates in segment II.

The speed of private information transfer, which can mitigate asymmetric information problems, depends on the learning process of a bank. Thus, the first category study (segment I) describes the role of organizational learning to improve the value of a bank relationship.

Organizational learning contributes a positive slope, while competition in the financial market that potentially drives out good clients can lead to a negative slope of the bank relationship curve. The survival or duration analysis can be fitted in segment II. The survival study uses the hazard rate (or even history) that estimates the time to discontinuation. The study focuses on whether there is a positive dependence i.e. the likelihood of ending a bank relationship increases. The study commonly employed a survivor function to estimate the likelihood of a relationship surviving beyond the beginning of the t^{th} period of the relationship duration is only $p\%$. Detailed discussions of the survivor function of the empirical duration studies are available in e.g. Ongena and Smith (2001), Caree (2000), and Kiefer (1988). Ongena and Smith (2001) and Boot (2000) believe the probability of ending bank relationships increases, suggesting that the value of relationships declines overtime. Competition is a threat to a bank relationship because it induces the exit of a relationship, especially switching to a competing bank. Relationship marketing is responsible for increasing the BCR curve. The BCR curve helps in structuring abstraction of a possibility to integrate among the concepts of a bank relationship, relationship marketing, organizational learning, and bank performance. However, the BCR curve cannot yet be used in formulating testable hypotheses.

As it is already stated in Chapter 1 and in the reviews of previous sections, this study addresses some of the gaps (or voids) in the empirical research of bank relationships by accommodating some rich literature on relationship marketing and organizational learning in explaining bank performance.

The duration of a relationship is the antecedent of the value creation. As explained in the beginning of this section, bank relationships have value in two opposing propositions: (a) the value of a relationship tends to increase overtime, since the likelihood of terminating a relationship should decline overtime, and (b) the value of a relationship tends to decrease overtime, meaning that the probability of termination increases overtime. Assuming that voluntary exchange can create value in corresponding parties, it suggests that banks will benefit from exchanges with their clients. The benefits reflect the performance of the banks. A long term relationship implies the sustainability of bank performance. All available constructed indicators of MFIs' performance give broader views. However, Steinward (2001) claims that a simple but sound measurement of performance of MFIs in Indonesia i.e. the parsimonious indicators in the financial system perspective on sustainable growth is the most appropriate

criteria to measure BPR performance. There are three proxies of sustainable performance: (1) an increase in total assets (2) loan performance, and (3) profitability. In this study, six BPR performance indicators will be used, including (1) asset growth, (2) loan growth, (3) loan to deposit ratio, (4) spread – between interest rates on loans and on deposits, (5) return on assets, and (6) return on equity. Two sets of indicators (measurable variables) of the three main concepts of the bank performance model and six concepts of the client intention to leave model are listed in Chapter 4.

Based on the perspectives of theoretical and empirical reviews in combination with the integrative model (Figure 2-6) some testable hypotheses can be formulated. As mentioned in the reviews, relationship marketing creates value creation and affects business performance. The implementation of relationship marketing can improve BPR performance for a sustainable period.

The study conjectures that through relationship marketing a bank can improve its performance.

A bank relationship, relationship marketing, and organization learning have a common dimension, which is the duration of a relationship. The duration of a relationship means the time for a bank to gather private information about the client. This relationship is an investment for both the client and the bank. Banks will improve the track record of client information; as a result, repeat loan decisions become quicker. Creative bank management uses formal and non formal monitoring mechanisms, not only to motivate repayment installments being made in a timely fashion, but also to gather information about the prospect of the client. Creative bank management will use additional information that mitigates information asymmetric problems not only (a) to speed up the credit decisions while minimizing the risk of bad credit but also (b) to anticipate or detect clients that desire to move to another financial institution. As a result, the following hypothesis arises from this basic thinking:

Strong bank-client relationship will improve the strategic intention and implementation of relationship marketing of BPR.

Good BPR management is not only used in the duration of a relationship to gather “private information” but also to develop productivity and efficiency in information collection. Loan officers, as frontline personnel of BPR in serving clients, have frequent, face-to-face communication with their clients during the monitoring stage. The loan officer accumulates enormous tacit information that potentially can be codified and shared through learning processes for the improvement of BPR. The time allocation and span of control of a loan officer

in serving clients may be among the constraints that hinder organizational learning. Furthermore, in terms of job scope, there are also some variations among BPRs. First, a loan officer has full authority in doing evaluations on credit proposals and repayment collections at the same time. The loan officer is called an account officer (for loans). Second, a loan officer's job is divided into two sub sections; the one who only handles credit request evaluation or the one who does credit investigations, called a surveyor. However, a loan officer who only collects debt is called a collector or debt collector.

The next source of variation among BPRs is the degree of information utilized from the four possible conversions of tacit and explicit information or knowledge. BPR management will continue to learn using any opportunities from the duration of a relationship to improve the productivity and efficiency in order to strengthen the ability to compete. Based on that, a hypothesis is formulated:

A BPR that has a strong will for organizational learning will strengthen its relationship marketing.

As explained in section 2.6, organizational learning and a bank relationship is concerned with the flow of information and the creation of value through information advantages. Two components that unite the study are (a) the duration of a relationship that deals with the assumption that the longer a relationship persists, the more opportunities there are to transfer explicit knowledge, and (b) the intensity of a relationship (intense personal contacts) correlates positively with transferring knowledge and especially tacit knowledge. Based on that idea, a hypothesis is devised:

Organizational learning and bank relationships are positively correlated

The four hypotheses can be arranged an integrative model, a simultaneous equation model, as it is depicted in path diagrams (Figure 2-7.a and b). These path diagram models represent a "bank performance model", where the data source to test the model is collected/originates from BPR survey data. Statistically, the path diagram of the first model (Figure 2-7.a) shows that BPR performance is directly influenced by relationship marketing. A bank-client relationship and organizational learning covariate each other and affect the behavior of relationship marketing.

This alternative path model (Figure 2-7.b) shows that a bank relationship affects BPR performance directly without any mediating construct, as expected by Ongena and Smith (2000). However, a bank relationship has possible indirect effects on bank performance through transfer mechanisms or mediation factors of organizational learning and then relationship marketing.

Figure 2-7.a: Main model (Model I) of BPR performance

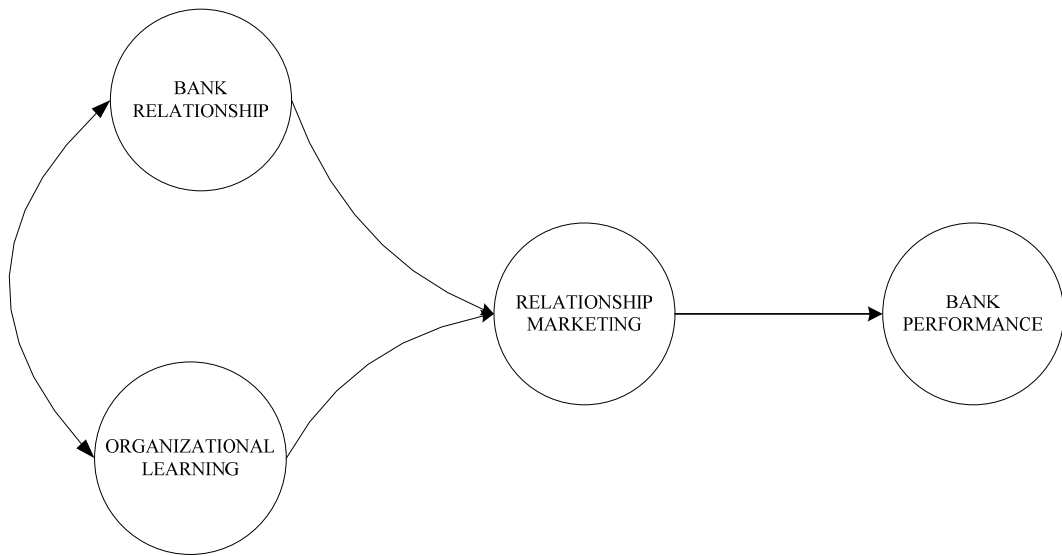
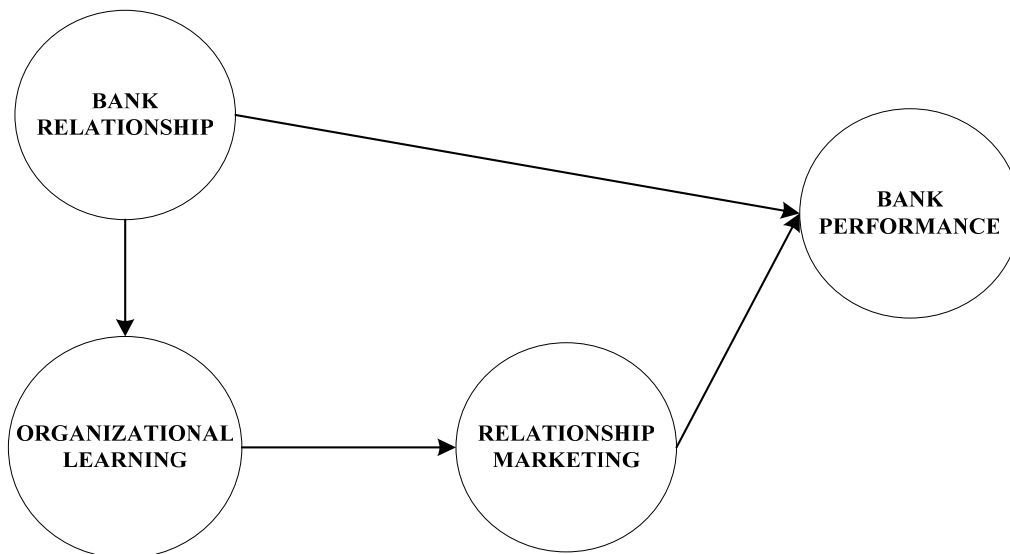


Figure 2-7..b: An alternative model (Model II) of BPR performance



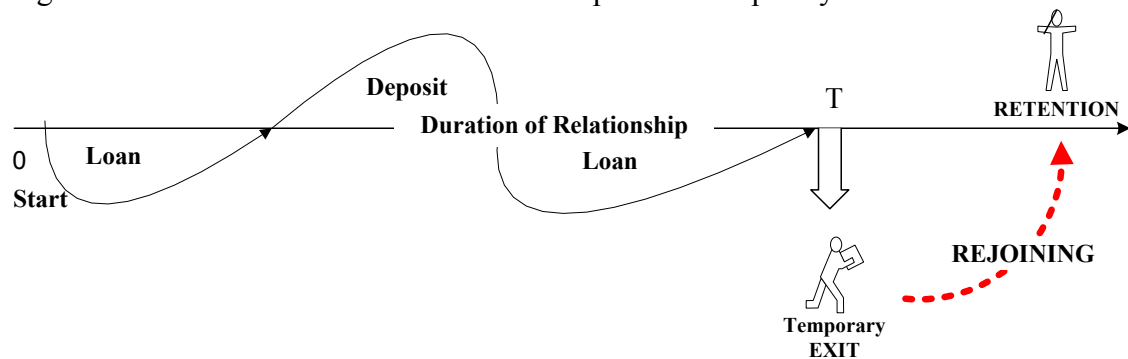
Since competition in the MFI loan market is getting tougher, expanding the credit distribution for long-term clients is challenging to assure BPR sustainable performance. As the explanation reveals above, relationship marketing suggests different strategies for a bank manager to prevent valuable clients to leave relationships. From some concepts or sub-concepts in relationship marketing that have been explained, they can be arranged a “client intention to leave model” as follows:

Client Intention to Leave Model

Competition in the loan market has two sides. According to Boot and Takhor (2000), the first view argues that with more competition, borrowers might be tempted to switch to other banks. The second view argues that a more competitive environment may encourage banks to become more client-driven and customize services, thus focusing on relationship banking as a specialization sector.

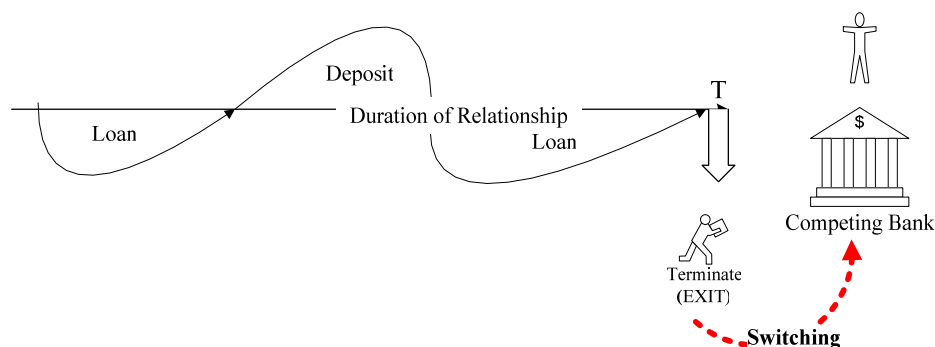
Before proceeding to model formulation, two possible patterns of durability in bank-client relationships need to be covered. The types of relationships can be conceptualized into two categories, i.e., (1) a continuous relationship - that is what a bank aspires for, because it is not threatened by competition and (2) dissolution and/or an intermittent relationship that is threatened by competition. Simplified intermittent relationship illustrations are presented as follows (Figure 2-8 a and b):

Figure 2-8.a: An intermittent bank relationship with a temporary exit



Both diagrams illustrate that the client begins to have dealings with credit. In a relationship with a bank, a client has an opportunity to have negative cash flow (loans) or positive (deposits) by turns. At any point, a client can temporarily stop and then join again as a bank client (Figure 2-8.a) or exit and move to a competing bank (Figure 2-8.b).

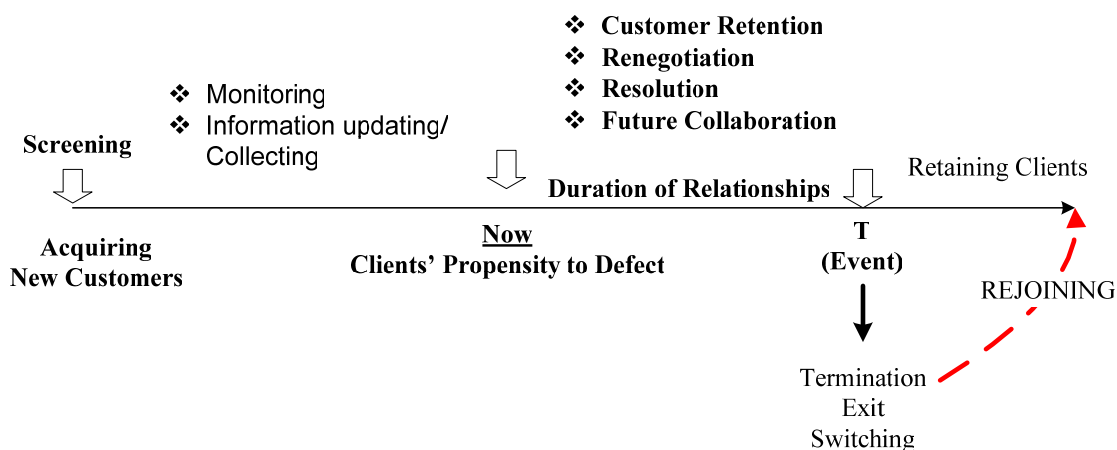
Figure 2-8.b: An intermittent bank relationship that switches to a competing bank



In other words, BPRs may have a group of client re-joiners (Figure 2-8.a) because the clients may not need temporary short term loans. This category of clients may not endanger a long term relationship. However, the second category of clients that permanently exit and move to a competing bank (Figure 2-8.b) is a threat to bank performance.

Study about durability relationship, especially event (occurrence) history analysis, is a study of a probability of customer being alive, for instance from Ongena and Smith (2001) and Reinartz and Kummar (2003). Bank managers who learn how to prevent long term relationship will have a higher retention rate of their valuable clients. Whether they are conscious or not, those managers are actually practicing relationship marketing. Exit (drop out, desertion, graduation, switching) may reflect a process of screening out of the clients i.e. honest or trustworthy and dishonest or untrustworthy clients. Repeat borrowers move upward in loan size brackets (larger loan sizes) with the existing bank. As mentioned by Harley (1999), on one side ninety percent of customers who defect do not do so because they are dissatisfied, but rather because they have a tempting alternative. It is important to understand that a relationship has potential resources that can be managed by a bank. For BPRs, which aim to provide service to micro and small enterprises and low income households, they have great opportunities to manage these intangible assets in a relationship. The clients have more cohesive social ties and they want a simple, fast delivery of services provided by a bank. Effective bank managers should have the following concepts (Figure 2-9) in mind:

Figure 2-9: A map of logical sequence to maintain valuable clients



Relationship marketing discusses an appropriate strategy for commercial banks (Berry Thomson, 1982; Day, 1985; Mariarty et al., 1983). Dweyr et al.,1987) suggest terminating unattractive relationships by creating disincentives, usually with the strategy of creating

switching costs or a strategy in creating superior value to clients to improve client satisfaction.

Through advertising or direct sales, a competing bank offers a more attractive loan package to clients of an incumbent bank. At first, some clients might be attracted by a more superior perceived value from a competing bank and make a first trial but then switch to a rival bank.

Based on the information detailed in section 2.11, two additional hypotheses can be drawn as follows:

Customer satisfaction is positively influenced directly or indirectly by the duration of a bank relationship. The value of a relationship and preventive measures taken by a bank manager or account officer positively affect client satisfaction.

Client satisfaction halts a client's intention to leave (exit) from a relationship, but action taken by a competing bank to lure a client may induce the client to exit.

These two hypotheses can be converted into path diagrams (Figure 2-10a and b) that represent a simultaneous equation of client intention to leave (relationship) models. The clients' intentions to leave are affected by some preceding variables, including client satisfaction and being lured by a competing bank.

Figure 2-10.a: Main model (Model I) of client intention to leave

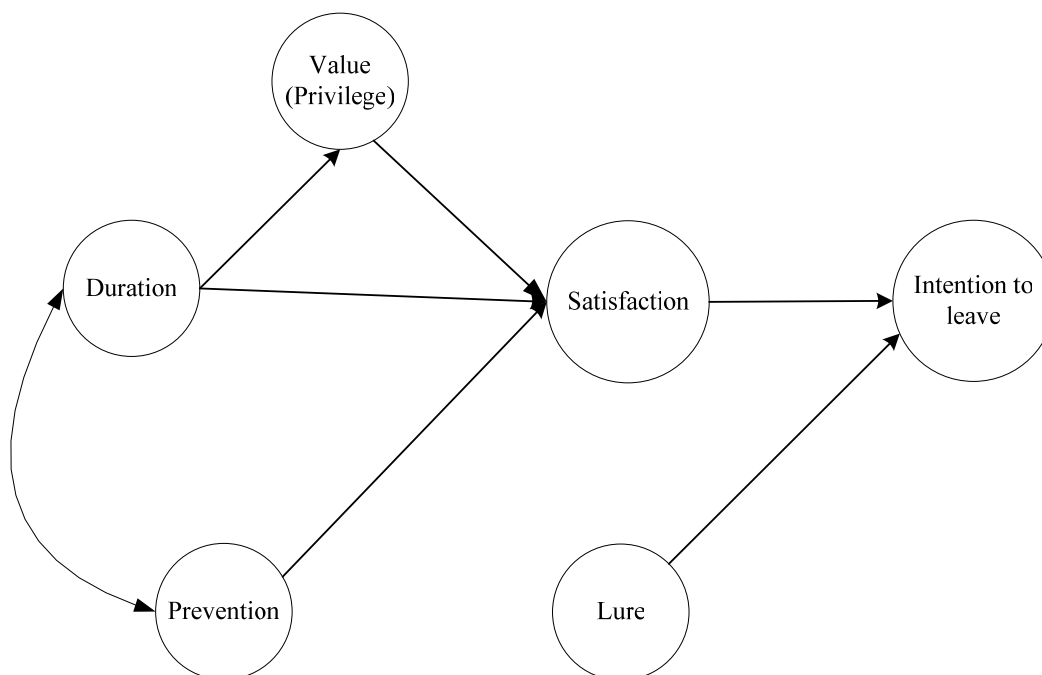
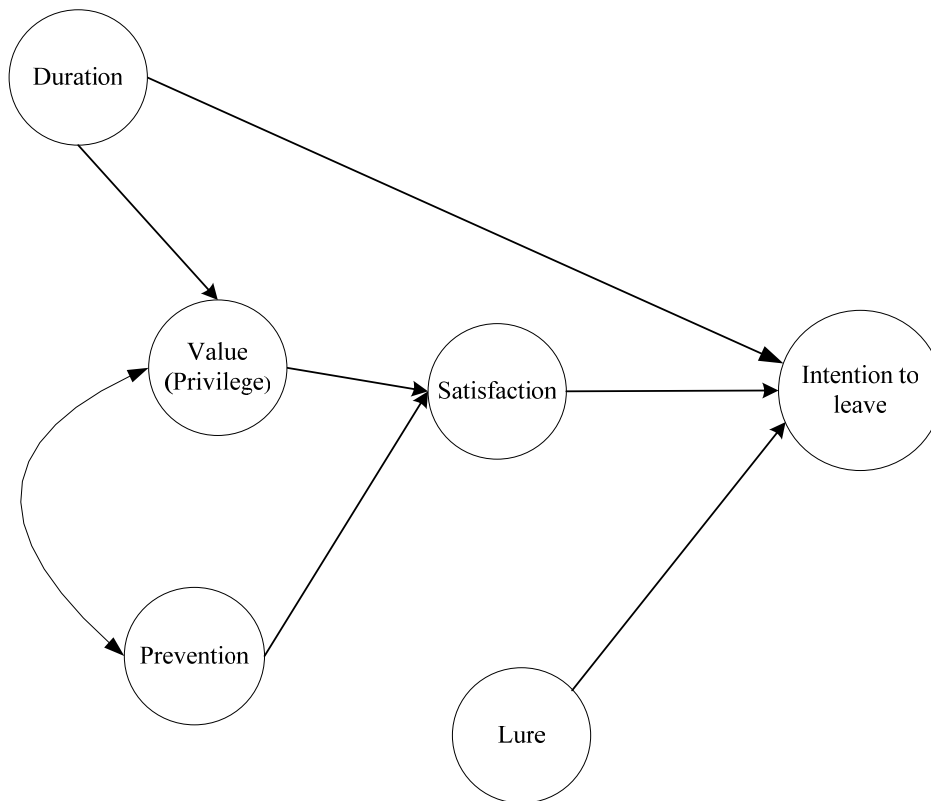


Figure 2-10.b: An alternative model (Model II) of client intention to leave



The BPR and client survey data that are used to test both models are not useful to answer the last research question that is concerned with the relationship process. As mentioned in the prologue of this chapter, the whole model can not explain the complexity of the relationship process. An additional in-depth study will explore the complexity of relationships among members of value and supply chains in order to disclose some possible bottlenecks in bank performance.