

Qualitative Risk Scoring in Relationship Lending: Case of Karafarin Bank

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Abstract

Unreliability of financial statements in Iran has urged this country's financial services industry management to manipulate practices by which they could gain reliable risk scores for borrowers. The purpose of this paper is to model the qualitative risk of relationship in relationship lending. This research extracts the most important qualitative factors that would impact the default of a business relationship borrower. Solicitation of the factors is done through Delphi methodology. The mean weight of each factor is then calculated from grades given to each factor by the experts.

As a case study, lending relationships of a private bank, Karafarin Bank (KB), and hundred of its relationship borrowers (some being creditworthy clients and some having past dues), are examined and the credit committee of the bank is asked to rate these companies based on attributes found by this research through Delphi method. The qualitative risk score of these companies are then derived and analyzed. The hypotheses testing of the results show that this qualitative scoring model could successfully distinguish between reliable and risky customers, therefore the model could be used as a credit risk scoring tool for bank managers of countries in which the financial data of customers is limited and yet unreliable.

Keywords: Relationship lending, Delphi method, relationship risk factor, Iran

JEL Classification Codes: M31, D81

1. Introduction

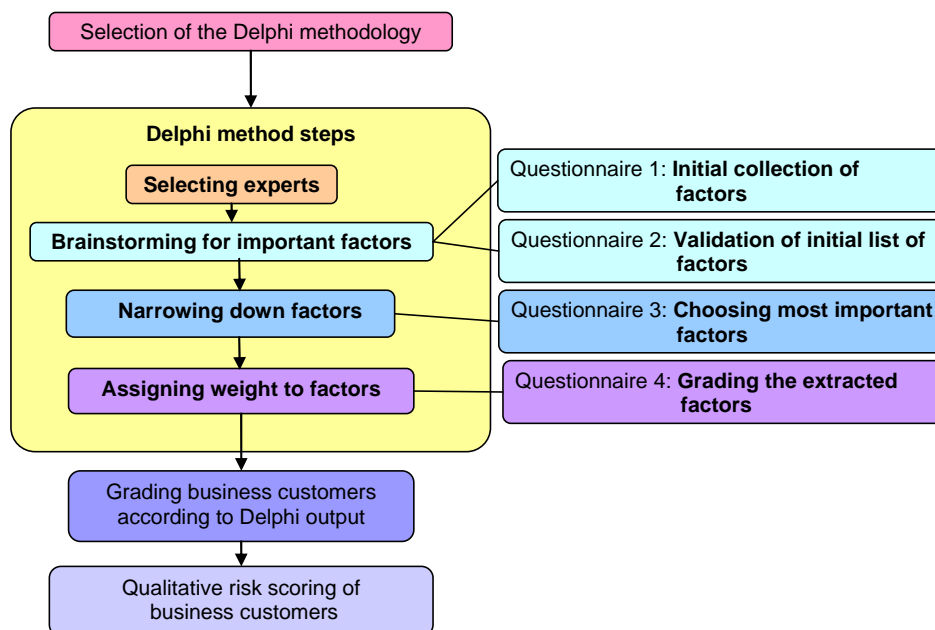
It is the age of relationship marketing, an age in which making a sale is just the beginning, rather than the end, of a company-customer relationship. In the financial services' industry as well, more than ever before, managers must understand their best customers' needs and prevent them from switching to other companies (Chiu et al., 2005). It is now proposed that closer attention is paid to the long-term financial benefits, and other benefits, of retained customers the main reason being that competition in the marketplace has intensified. To achieve growth, it is argued, organizations must change their

paradigm to that of relationship marketing (Lindgreen and Crawford, 1999). Relationship lending is then defined as a long-term implicit contract between a bank and its debtor (Elsas, 2005).

Banking industry in Iran is getting more and more competitive by the establishment of private banks in 2001, so banks are urged to manipulate practices by which they could gain competitive advantage over competitors. Fundamental means to obtain this goal would be maintaining relationships that are more profitable in long term for the bank and prerequisite of this practice would then be identification of risk factors, specifically for Iranian banks where the concept of relationship banking is a new perception. The financial ratios have been used for the past 6 years by Iranian banks for estimation of customers' risk score, but since there is no accredited credit history available for customers in Iran and financial statements are unreliable, the error of such computations is on average 35% (Sabzevari et al., 2007) and makes these financial scores useless in decision making. Currently a firm with fake good-standing financial statements could get a low risk score and would take advantage of being cross-sold or up-sold during its relationship with the bank and the bank might not be able to prevent losses on time. So there has recently been an urge from the management of some Iranian banks to have tools by which they could gain reliable risk rating method for their customers to complement the existing financial scores. So this research basically extracts the most important qualitative factors that would affect the relationship borrowers' risk in Iranian banking industry and would then compute qualitative risk score for them.

Ryals and Knox (2006) in their research have prepared a relationship scorecard for business customers of an insurance company according to nine main factors they had extracted. Their factors were extracted by semi-structured interviews with KAM's (Key Account Management) team of an insurance company. This relationship risk scorecard was then used to analyze the 10 key accounts for which full data were available. In our research, the extraction of the factors is done through Delphi method which is an expert survey. Delphi method's objective is to develop a technique to obtain the most reliable consensus of a group of experts (Okoli and Pawlowski, 2004). In our research we too needed to have a valid list of qualitative factors based on which a score could be assigned to customers. Delphi seemed a more suitable method than semi-structured interviews since the output of Delphi method would be a list of attributes on which the experts have consensus and this feature would let us use this compromised list with high certainty for further computations. The flowchart of the research is shown in Figure 1.

Figure 1: Flowchart of qualitative risk score modeling



Credit facilities (guarantees, loans, L/C's) are recognized as the most profitable services of a bank, so we have considered a B2B lending relationship as our unit of measurement.

A pioneer bank in adoption of relationship banking in Iran, Karafarin Bank (KB), has provided us with details of lending relationships with hundred of its business customers of whom sixty five firms have less than three months of past dues (called reliable customers in this paper) and thirty five firms have more than three months of past dues (called risky customers in this paper). The results of this research show that the qualitative risk score could be a good complement for financial score in countries with weak institutional framework.

The remainder of this paper is structured as follows. In the next section we will review the literature on relationship lending and its constructs. In section 3, we will briefly review the background and lending process at KB. Section 4 deals with the Delphi process for information solicitation and analysis of risk scores for the firms. We conclude with some managerial implications and future research directions in section 5.

2. Literature Review

Grönroos (1994) suggests a relationship definition of marketing:

Marketing is to establish, maintain, and enhance relationships with customers and other partners, at a profit, so that the objectives of the parties involved are met. This is achieved by a mutual exchange and fulfilment of promises (Gronroos, 1994).

It is proposed that closer attention is paid to the long-term financial benefits, and other benefits of retained customers the main reason being that competition in the marketplace has intensified. To achieve growth, it is argued, organizations must change their paradigm to that of relationship marketing (Lindgreen and Crawford, 1999).

In the financial services industry as well, more than ever before, managers must understand their best customers' needs and prevent them from switching to other companies (Chiu et al., 2005). One most successful approach to address these issues would be relationship banking which according to Bharath et al. (2005) is that if a financial intermediary's decision to supply various services to a firm is based on borrower-specific information that the intermediary collects over multiple interactions (over time as well as across multiple products), and further, if this information is proprietary (available only to the borrower and the intermediary), the intermediary is engaged in relationship banking. In contrast, transaction-oriented banking is based on identical transactions with various customers, so that transaction based lending is financing according to that particular transaction rather than being aimed at an information based relationship (Boot, 2000). It is important for prudent lenders to gather information about the creditworthiness of the borrowers. There are several ways to obtain this information, but one method that is especially well suited for new firms (to the bank) is the development of long-term lender-borrower relationships (Elyasiani and Goldberg, 2004), which enables the lender to better know the borrower and offer suitable services at the right time to the right borrower. The aim of relationship banking then would be resolving problems of asymmetric information (Boot, 2000). As a subset of relationship banking, relationship lending is defined as a long-term implicit contract between a bank and its debtor (Elsas, 2005).

Researchers have mentioned several benefits of relationship lending (for lender) which could come from multiple sources such as the ability to share sensitive information, more flexible contracts, the ability to monitor collateral, and the ability to smooth out loan pricing over multiple loans (Bharath et al., 2005). Baharath et al. (2005) show in their research that strong past lending relationships significantly increase the probability of securing future lending and investment banking business.

Many factors have been considered effective in relationship lending in financial service industry, an important one being the risk. The constructs of risk are investigated by many researchers and each of these researches indicates the risk factors for a specific financial service in a specific country. For instance, the amount of return on sales and size of the firm for relationship borrowers of German banks are investigated (Behr and Guttler, 2007), or Ryals and Knox (2006) have prepared a

relationship scorecard for business customers of an insurance company according to nine main factors they have extracted from a KAM's team. These factors included number of customer relationships within the company, number of products bought by the customer, longevity of relationship or how good is the company's understanding of customer's company and industry (Ryals and Knox, 2006). Duration of a bank-borrower relationship is also investigated by Elsas (2005) and the basic idea is that duration reflects the degree of relationship intensity over time. The number of bank relationships is associated with a higher riskiness of the borrowers according to Foglia et al. (1998) because when a large number of lenders are involved, monitoring of the borrower tends to be weaker. Multiple banking relationships could also be due to inefficient judicial systems and poor enforcement of laws of a country, or even the size of the firm; the larger the firm, the more the number of relationships (Ongena and Smith, 2000).

3. Lending Process in Financial Services

Iranian private banks started to establish in 2001 after a twenty-year gap, and now they add up to six banks. During the past 7 years, KB has proved to be a pioneer not only in offering new services to its customers but also to adopt new banking concepts in Iran, one being the relationship banking concept. For this reason, we considered KB as the best potential for providing our case study. KB has been officially established as the first Iranian private bank in operation on January 1, 2001.

Since lending relationship of KB and its business customers has been the subject of the case study in our research, we will take a look at lending technique at KB to get an understanding of ineffectiveness of this process and will see that relationship lending seems the best technique for current situation of lending for this bank.

3.1. Lending Technique at KB

When a loan application is filed by a firm at KB, the credit committee of the bank will decide on the amount of loan that could be granted to the firm. This committee, which differs in number and expertise of members from one bank to another, includes four members at KB which decides on the basis of financial/non-financial criteria along with credit policies of the bank. The financial factors are mostly unreliable in Iran due to false or fake financial statements of the firms and non-financial criteria are checked by subjective knowledge of the committee members about the firm and its industry. The problem with non-financial criteria is that there is no valid reference of attributes for the committee members based on which they could decide. Each member would evaluate the firm according to his own frame of reference which would cause inaccuracy of final decisions.

According to Baas and Schrooten (2006), there are four types of lending in financial services in which the first is based on soft information and the other three are based on hard information. These lending techniques are shown in Table 1.

Table 1: Lending techniques adapted from Baas and Schrooten 2006

<i>Relationship lending</i> is based on the experience of a given bank with a specific borrower and therefore on soft information collected over time. So if financial data is limited, relationship banking is the technique of choice.
<i>Financial statement lending</i> is based on evaluating information from the firm's financial statements. The decision to lend depends largely on the strength of the balance sheet and income statements.
<i>Asset-based lending</i> is principally based on the quality of the available collateral. This type of lending causes high monitoring costs and requires high-quality receivables and inventory available to pledge (Berger and Udell, 1995, 1998; Boot, 2000). That is why it is generally used as a substitute for relationship lending if the term of the relationship is short.
<i>Small business credit scoring</i> is an adaptation of statistical techniques used in consumer lending. In addition to information about the financial statements, the creditworthiness and history of the owner is heavily weighted (Frame et al., 2001).

Source: (Baas and Schrooten, 2006)

In Iranian financial services including KB, when hard assets such as real property, equipment, and inventories are pledged and a firm fails to repay its debts, which is very common in Iran, the bank takes over pledged assets through a lengthy and a bureaucratic process and tries to sell those assets to the highest bidder in an auction. The lengthy process of collateral evaluation besides the lengthy process of collateral liquidation through judicial system, in addition to high economic fluctuations, make the *asset-based lending* unfavorable both to borrowers and lenders in Iran. On the other hand unreliability of financial statements and limited financial data of firms cause *financial statement lending* and *small business credit scoring* techniques erratic. So relationship lending seems to be the most suitable technique for KB considering current situation and the risk of this relationship then becomes of great importance to KB.

There have been some researches conducted on relationship between relationship lending, collateral, and riskiness of clients. For instance according to Boot (2000), a contractual benefit of relationship lending is that bank loan contracts can more easily and safely accommodate collateral requirements to secure loans. Also Jimenez et al., (2006) found empirical evidence that relationship lending pays off for borrowers in terms of a lower likelihood that bank will require them to pledge collateral in new loans (Jimenez et al., 2006). In another research, Jimenez et al., (2006) show that collateral is a way to decrease the risk of the loan operation. Also Boot, (2000) mentions another benefit of collateral as exposure of valuable information to the bank over time. For example, a bank with inventories and accounts receivable as collateral, may learn valuable information about the business and it (collateral) can actually mitigate moral hazard and adverse selection problems of relationship lending (Boot, 2000).

4. Qualitative Risk Score Modeling

As mentioned in section 2, Ryals and Knox (2006) have extracted relationship risk attributes through semi-structured interviews with company's Key Account Managers, and then prepared a relationship risk scorecard according to extracted attributes. In this section we will go through the Delphi process for extraction of risk attributes that affect the lender-borrower relationship, and then we discuss how to use it for estimation of risk score.

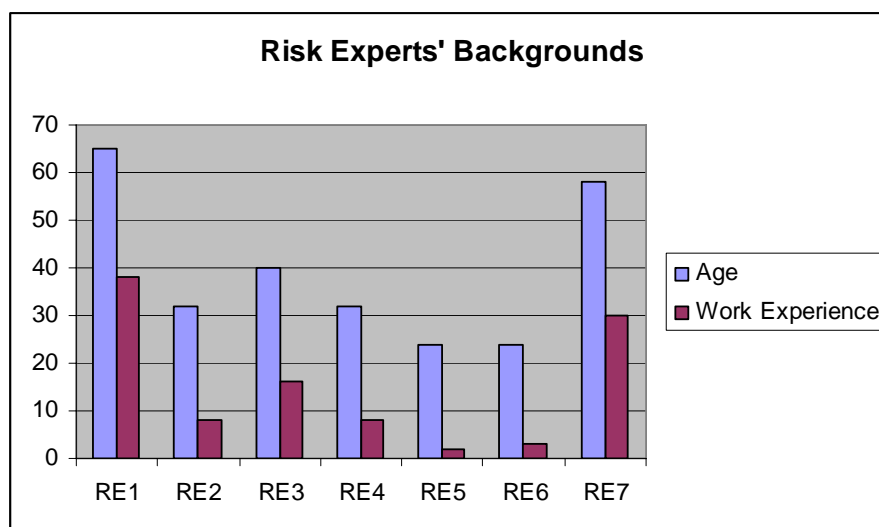
4.1. Research Method

For the purpose of gathering attributes that are most influential in the continuation of relationship lending with a business client of a bank in Iran, Delphi method was conducted. In other words we wanted to solicit information from banking experts on the most important qualitative risk factors of relationship borrowers. The Delphi method was originated in a series of studies that the RAND Corporation conducted in the 1950s and the objective was to develop a technique to obtain the most reliable consensus of a group of experts (Okoli and Pawlowski, 2004). Delphi researchers employ this

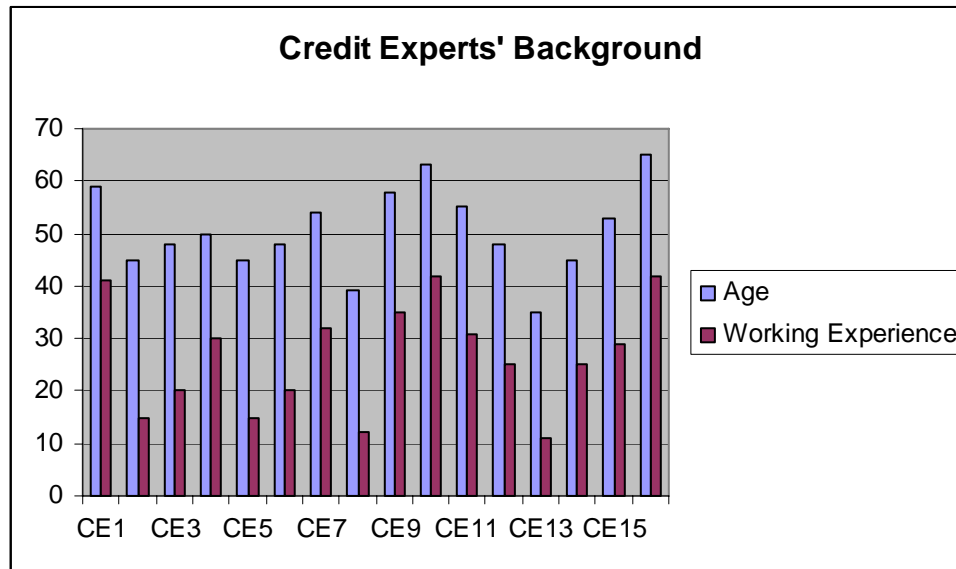
method primarily in cases where judgmental information is indispensable, and typically use a series of questionnaires interspersed with controlled opinion feedback (Okoli and Pawlowski, 2004).

Delphi steps are shown in Figure 1 of section 1. In the first step, we had to choose our Delphi experts nationwide. We first chose the main panels related to this research to be two main panels including the credit evaluation experts and the other one, the risk management experts. The experts were listed according to their work experience in banking sector meaning that CEOs of five Iranian private banks were asked to introduce their risk and/or credit experts that they had in the bank or knew outside the bank. From 28 panelists of the two panels that we contacted, 23 accepted to participate and remained till the last questionnaire. Of these twenty three experts, seven were risk experts and the rest were credit experts. The risk experts' average age was 39; they had an average of fifteen years of working experience in financial services, and were graduated at B.S or M.S levels in one of the following majors: Economics, Finance, management or engineering. One of the risk panelists had PHD in finance and around 38 years of working experience in financial services. Some information of risk experts is shown in Figure 2.

Figure 2: Risk experts' age and work experience



On the other hand, the credit experts' average age was 50; they were mostly experienced in banking with average of twenty six years of working experience. Their educational background was B.S in accounting, management, CS, and banking. Two of them had no official degree from any accredited college or institute and had only high school diploma. One of them was an MA student majoring in banking. Some information of credit experts is shown in Figure 3.

Figure 3: Credit experts' age and work experience

Next step was brainstorming the experts. For this step our first questionnaire was developed which could be found in Appendix 1. In this questionnaire, we asked panelists to bring up as many non-financial factors as they could that was, in their opinion and due to their experience, influential in the continuation of relationship with a relationship borrower. They were also asked to give a brief description of each factor they had mentioned to help in gaining consensus at the end. The results of first questionnaire are brought in Appendix 2.

In the second questionnaire, we put extracted factors of first questionnaire along with experts' reasons and sent it together with a copy of experts' responses to first questionnaire. We then asked experts to verify their answers. According to (Schmidt, 1997), "without this step, there is no basis to claim that a valid, consolidated list has been produced." Some experts' lists had major changes in some cases such as adding the factors from the consolidated list to their own list. We put the consensus condition of this stage to be that if more than 80% of the experts reject an attribute to be on the list, the attribute is omitted. The condition of consensus is set by Delphi researchers and there is no specific rule for that, but the more the rounds of the Delphi method and the more restrict the set rules, the more reliable the results (Fink et al., 1984). Three of the factors were identified as "influential factors in commencement of lending relationship with a new customer" by 18 experts. These factors were 1) Relationship of the firm with its clients, 2) Performance of the firm in the banking system, and 3) Credibility of the referee of that firm to the bank, and were all omitted from our list. The other omitted factor was the extent of word of mouth the firm could bring for the bank which was considered "non-related to the research purpose" or "value creating indicator" by the experts, so was omitted from the list. So the output of this phase of our Delphi was a verified list of 22 factors.

In our third questionnaire we asked experts to identify (and not rank) at least 10 factors (from 22 factors) that they thought were the most important risk factors in relationship lending. We repeated this step for three times and selected attributes which had got more than or equal to 12 votes (50%) in all three rounds. The reason for omitting some attributes is that we want to find the attributes that experts have consensus on their importance. We got total of 13 attributes at this stage which became our final compromised list.

In our last questionnaire we asked experts to grade the importance of each of these attributes from 1 indicating very poor, to 7 indicating very strong. The mean weight of each attribute was then calculated and is shown in table 2.

Table 2: Final Delphi extracted attributes and their weights

Factor	Mean Weight
1. Competence capability	4.35
2. Degree of deregulation	5.13
3. Independency from imports	5.17
4. Client's market share	5.74
5. Domestic growth of firm's industry	5.13
6. Number of buyers	5.83
7. Number of suppliers	4.61
8. Management quality of the firm	6.39
9. Type of collateral and credibility of cosigners	5.13
10. Firm's production/sales capacity	5
11. Reliability of firm's financial statements	6.13
12. Longevity of relationship with bank	5.83
13. Firm's account activity within the bank	6.09

4.2. Qualitative Risk Score Computations

Next we gave the list of extracted attributes to credit committee of KB (four members) and asked them to grade a list of 100 firms on basis of each solicited attribute, again on the scale of 1 (very poor) through 7 (very high). From the members of the committee only one member was completely familiar with the firms that we had chosen, so the grades were assigned by him. He was included in our Delphi panel and so did not entail any objection to the extracted Delphi attributes. For 25 firms, the head of the branch by which the credit facility was granted also graded the firms and the average of the two opinions was considered the final grade. One of the graders was included in our Delphi panel and the other one did not entail any objection to the extracted Delphi attributes. Scores of each firm was calculated by sum-product of mean grades of each attribute by the mean weight of it. For instance Customer #1 has got the following grades for its 13 attributes: A1=1, A2=4, A3=7, A4=4, A5=2, A6=7, A7=5, A8=3, A9=5, A10=4, A11=3, A12=7, A13=3. Then each of these grades was multiplied by its corresponding mean weight indicated in Table 2 and then added together which yields 302.67 for this customer. The scores are shown in Table 3. The "performance" column of table 3 indicates the performance of each firm where 0 means past dues of less than three months, and 1 means past dues of more than three months. The performances of the firms are filled out from their files at KB. In this research, customers with performance code of "1" are referred to as *risky* customers and those with performance code of "0" are referred to as *reliable* customers.

Table 3: Firms' scores and their performance

Customer ID	Qual Score	Performance	Customer ID	Qual Score	Performance
1	302.67	0	51	241.02	0
2	298.68	0	52	256.97	0
3	323.08	0	53	294.65	0
4	283.12	0	54	378.37	0
5	349.41	0	55	279.85	0
6	296.43	0	56	277.78	0
7	302.20	0	57	338.74	0
8	305.88	0	58	362.79	0
9	318.01	0	59	341.81	0
10	297.57	0	60	282.05	0
11	287.95	0	61	346.67	0
12	328.50	0	62	345.47	0
13	329.32	0	63	297.34	0
14	263.12	0	64	327.46	0
15	369.57	0	65	332.80	0
16	308.29	0	66	233.25	1
17	282.41	0	67	292.25	1
18	312.45	0	68	234.67	1
19	298.79	0	69	238.73	1
20	363.77	0	70	242.27	1
21	355.97	0	71	229.28	1
22	295.45	0	72	233.89	1
23	349.50	0	73	256.37	1
24	369.79	0	74	245.41	1
25	267.97	0	75	277.03	1
26	264.91	0	76	227.54	1
27	290.18	0	77	211.38	1
28	312.54	0	78	202.88	1
29	293.43	0	79	246.03	1
30	321.37	0	80	250.67	1
31	325.42	0	81	242.95	1
32	289.14	0	82	209.96	1
33	308.20	0	83	240.93	1
34	323.44	0	84	238.54	1
35	322.55	0	85	230.96	1
36	312.44	0	86	225.51	1
37	356.95	0	87	230.07	1
38	239.15	0	88	243.31	1
39	273.12	0	89	231.78	1
40	251.58	0	90	200.43	1
41	227.37	0	91	235.84	1
42	342.33	0	92	252.24	1
43	328.07	0	93	167.13	1
44	289.09	0	94	247.13	1
45	359.07	0	95	226.01	1
46	341.53	0	96	222.77	1
47	335.04	0	97	241.68	1
48	291.40	0	98	231.99	1
49	249.34	0	99	235.37	1
50	255.85	0	100	212.13	1

The normality of the scores was tested by Chi-square goodness of fit test for both *risky* and *reliable* population groups. The *reliable* customers (65 members) got the 99.5% confidence level to be a normal population, while the *risky* customers (35 members) got the 95% confidence level which could be due to smaller sample size of this group. The mean and standard deviation (STD) for *risky* customers was respectively 233.95 and 21.48 whereas for *reliable* customers they were 309.71 and

36.38. Considering both populations have normal distributions, we tested for the following sets of hypotheses:

- A) $\left\{ \begin{array}{l} H_0: \text{the two population means are equal} \\ H_1: \text{the two population means are significantly different} \end{array} \right.$
- B) $\left\{ \begin{array}{l} H_0: \text{the two population variances are equal} \\ H_1: \text{the two population variances are significantly different} \end{array} \right.$

To test the mentioned hypotheses we ran the T-test for set A and F-test for set B. For the T-test, the degrees of freedom yields 100 (rounded) and since we have a two-tailed test, $t(100,0.025) = 1.984$. The value for t yields 2.28 having the STD and sample sizes. The acceptance region would be $-1.984 < t < 1.984$, so we reject the null hypotheses of set A with 95% confidence and would accept H1 which suggests the means are significantly different for the two populations.

For the F- test, the degrees of freedom are 64 and 34 respectively for *reliable* and *risky* customers. On the other hand $F_{64,34} = [\text{STD}(\text{reliable}) / \text{STD}(\text{risky})]^2 = 2.86$ and since the critical value for right-hand tail area equal to 0.005 is 2.30, we reject the null hypotheses with 99.5% confidence which means we agree that the variances of the two populations are significantly different.

For each group, we consider 95% area under the normal distribution which is the $\mu \pm 2\text{STD}$. For the *reliable* customers, this range is 237 till 382 vs. this range for the *risky* customers which is 191 till 277. So the range of scores between 237 till 277 is where the two groups' scores overlap and in our sample we have 20% of the customers in this range.

To further analyze the results, we got the score for difference of averages of each attribute for *reliable* customers and *risky* customers to indicate the most important differentiators of these two groups. The results are shown in table 5. We found out that A8, and A9 are respectively the most influential factors that cause the difference between *risky* and *reliable* customers. These factors according to Table 2 are "management quality of the firm" and "type of collateral". The former, A8, has also got the highest importance weight from our Delphi experts. So although experts have verified this attribute as an important factor, it is still the most influential discrepancy factor at KB. This could imply that KB would better set more lucid indicators for A8 so that the committee can more accurately evaluate this characteristic of the firm. The latter, A9, which came out as a significant discrepancy factor in our research, is also emphasized in literature by Jimenz et al., (2006) as a way to decrease the risk of relationship lending.

On the other hand, A3 and A2 respectively got the lowest strengths as discrepancy factors. A3, "independency from imports", could have been a discrepancy factor because the political restrictions for imports in Iran would cause firms to face roughly the same conditions for this attribute. A2, "degree of deregulation", could also be justified as government not only heavily regulates firms in Iran, but also holds ownership of large firms in many industries and this could cause firms not to differ much regarding this attribute. The "reliability of the firm's financial statements" that has got high importance weight according to experts of our Delphi panels, is the fifth lowest discrepancy factor. This indicates the fact that financial statements are not trustworthy enough in Iran to be used for risk scoring of customers.

Table 4: Strength of the differentiators

Factor	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13
Reliable	3.11	4.2	4.15	3.73	4.11	5.08	4.59	6.02	5.65	4.56	3.45	5.14	3.06
Risky	2.63	4.09	4.14	2.63	2.76	4.21	4.37	2.96	3.45	3.23	3.09	4.43	1.43
Diff	0.48	0.11	0.01	1.1	1.34	0.87	0.22	3.05	2.2	1.33	0.37	0.71	1.63
Weight	4.35	5.13	5.17	5.74	5.13	5.83	4.61	6.39	5.13	5	6.13	5.83	6.09
Strength	2.08	0.57	0.04	6.31	6.9	5.05	1.01	19.5	11.3	6.66	2.26	4.13	9.94

5. Conclusion and Managerial Implications

In this paper, we tried to get an overview of the lending technique at KB and offered relationship lending as the most suitable lending technique considering current situation of collateral liquidation, unreliable financial statements, and economic fluctuations. Risk of relationship lending then becomes a great issue for banking sector and since financial scoring does not give good results in Iran due to unreliability of financial statements of the firms, this research tried to find a qualitative risk scoring method to complement that of quantitative one.

So we discussed the Delphi methodology for soliciting the most important qualitative risk factors of this new lending technique in Iran. Thirteen attributes were derived among which the management quality of the firm had the highest weight, and the reliability of financial statements of the firm was the next. While these factors had the highest weights in terms of importance, the factors which got the highest score in differentiating risky customers and reliable customers were “management quality of the firm”, “type of collateral”, and “firm’s account activity within the bank”. So the management of KB should consider these factors with greater attention in its decision makings for investment on customer relationships. **Also we figured out that “reliability of financial statements” is not a significant differentiator of the risky and the reliable for our sample which agrees with motivations of this research.**

We also discussed how these attributes could be used for assigning a qualitative risk score to customers and the F-test and T-test on the obtained scores showed that the population variances and population means of risky and reliable customers were significantly different. Customers with scores between 277 and 382 would carry the lowest risk while customers with scores between 191 and 237 are more risky to be cross-sold or up-sold.

Risk factors like number of bought products or number of banking relationships which are emphasized in literature did not come out as significant factors on our final Delphi results. The reason could be that Iranian private banks are not competitive enough yet to offer variety of banking products. They also know it is extremely hard for a borrower to get involved in relationship lending with a bank due to limited number of private banks, so borrowers would hardly try having multiple of these relationships.

This scoring method of qualitative risk that was discussed in this paper could help the management of the bank in deciding which relationships could be modified with regards to the attributes that cause their low scores, and which relationships are worth being maintained with special services.

This risk score could also be used for loan pricing or for setting collateral conditions for customers by considering higher score customers as more profitable in long term so offering them lower interest rates or easy circumstances for collateralization, as was also mentioned by Boot (2000). At the same time the bank should observe relationships of lower scores more closely to avoid probable losses.

The results of qualitative risk scoring shows this method could be a suitable complement of current financial scoring method in countries like Iran where there is a limited financial data available and this available data is unreliable.

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Appendix 1. First Questionnaire of Delphi Method

Dear respondent,

As you know, the factors which are influential in continuation of lending relationship between a lender and a business borrower in financial services are divided into two main categories of qualitative and quantitative factors. The purpose of this questionnaire is to extract the *qualitative* factors that would indicate the risk of this relationship in Iran. Please note that by risk factors of lending relationship we mean factors that increase the probability of default of a relationship borrower.

According to what is said please identify as many factors as possible, which in your opinion and with regards to your experience, are influential in the riskiness of lending relationship with a business relationship borrower.

Please give a brief description of the reason for your choice if possible.

We sincerely appreciate your time in advance

Appendix 2: Initial List of Experts' Factors and Summary of their Reasons

Risk Factors	Summarized description by the experts
Economic sector of the firm	Different economic sectors like agriculture, construction, ... have different risks
Competence	The lower the number of competitors the lower the risk
Degree of deregulation	The less dependent the firm is from governmental regulations, the less risky since the governmental regulations are not stable
Growth rate of the firm's industry	The higher the domestic growth, the less the risk
Impact of inflation on firm's activity	The higher the impact, the higher the risk
Impact of imports on firm's activity	The higher the impact, the higher the risk
Market share of the firm	The higher the market share, the lower the risk
Performance of the firm in the banking system	The better the performance, the lower the risk
Relationship of the firm and its clients	The better the relationship the lower the risk
Number of suppliers	If the number and variety of suppliers is high, the risk is lower
Number of buyers	If the number and variety of buyers is high, the risk is lower
Extent of word of mouth the client can bring	The more the WOM, the less the risk of losing customer
Management quality of the firm	Experience of the management in the field, related education
Sales fluctuations of the firm	The higher the sales fluctuations, the higher the risk
Ratio of variable cost/ fixed cost	If high, means technology usage and/or internal management is weak, so the risk is high
Type/amount of collateral and reliability of cosigners	Liquidation capability and type of promissory notes, stocks, residential property, account receivable
Activity permits of the firm	The higher the compatibility of permits with activity, the lower the risk
Production capacity of the Firm	The higher the volume of production, the lower the risk
Reliability of the firm's financial statements	Five options identified from low risk to high risk: Audited financial statements, un-audited financial statements, tax statements, balance sheet only, no financial statement
Credit facilities' usage purpose	If the usage is beneficial and matches the firm's activities, the risk is lower
Longevity of the relationship	The longer you know the customer, the lower the information asymmetry, the lower the risk
Reliability of the referee	The more reliable the referee, the lower the risk
Number of bought services by the firm	Could be both positive or negative in terms of risk
Extent of account activity with the Bank	Concentration of checking account activities in the bank means more reliability and control
Extent of credit activities within the Bank	Concentration of credit activities in the bank means more reliability and control
Growth rate of the firm's credit activity with the bank	If the growth is high and matches the firm's activity growth, the risk is lower