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Credit reporting, relationship banking, and loan repayment

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C H R O N I C L E

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A B S T R A C T

This paper presents an empirical investigation to determine factors influencing on loan repayment in one of Iranian banks named Sepah Bank over the period 2012-2013. The study selects a sample of 290 bank's customers who received loans and, using logistic regression technique, tries to find whether or not qualitative as well as quantitative characteristics of loan receivers influence on repayment of loans. The results indicate that history of outstanding debt as well as customers' past experiences with banks had meaningful relationships with having bad credit and non-payment of loans. In our survey, having a bad credit in the past had positive relationship with non-payment of loans but long-term customers had negative relationship with non-payment of loans. In addition, working capital turnover ratio, cash ratio, total liabilities, current assets and loan value had significant impact on non-repayment of the loan facilities.

1. Introduction

Many people are normally forced to make difficult decisions every day about paying bills, buying food, accessing medical care, and stretching their household budgets. Business activities and banks are designed to make it easier for people to connect with programs and resources that can make such decisions just easier. Banks keep people's saving and create opportunities for online purchase without carrying cash. Banks, on the other hands, use deposits to give loans to firms, business owners, etc. The primary question is to find out more about factors influencing repayment loans (Cassar et al., 2007). Lending to the worlds' poor through groups rather than individuals is also used as a tool to reduce poverty (Paxton et al., 2000). Salleh et al. (2014) performed an investigation to find out whether an interest-free credit facility is more efficient than a usurious payday loan. Sharma and Zeller (1997) investigated the repayment rates of 128 credit groups associated with three group-based credit programs in Bangladesh. Using TOBIT analysis, specific experiments were executed on group size, size of loans, degree of loan rationing, enterprise mix within groups, demographic characteristics, social ties and status, and occurrence of idiosyncratic shocks. They reported that whenever some basic principles of prudential banking were adhered to, repayment rates could be good even in poor and remote communities.

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According to Brown and Zehnder (2007), information sharing may increase repayment rates, as borrowers forecast that a good credit record definitely may contribute their access to credit. This incentive effect of information sharing is significant when repayment is not third-party enforceable and lending is dominated by one-shot transactions. Onyenucheya and Ukoha (2007) determined the factors influencing loan repayment of farmers in Nigeria. They reported that amount of loan borrowed, annual income and distance between and loan source were key determinants of repayment. Godquin (2004) presented a comprehensive investigation of the performance of microfinance institutions (MFIs) in terms of repayment. They concentrated on the analysis on the effect of group lending, nonfinancial services and dynamic incentives on repayment performance. They applied a comparative analysis of the determinants of the repayment performance and of loan size to make policy recommendations on the allocation of loans by MFIs. Derban et al. (2005) investigated loan repayment performance in community development finance institutions in the UK. They reported that 8 out of the 13 institutional characteristics examined substantially influence loan repayment performance. Graham et al. (2008) studied the impact of financial restatement on bank loan contracting and reported that compared with loans initiated before restatement, loans initiated after restatement had substantially higher spreads, shorter maturities, higher likelihood of being secured, and more covenant restrictions. In their survey, the increase in loan spread was substantially larger for fraudulent restating companies than other restating ones. They also reported that after restatement, the number of lenders per loan declined and companies paid higher upfront and annual fees. Brehanu and Fufa (2008) used a two-limit Tobit model to study the determinants of repayment rate of loans from semi-formal financial institutions among small-scale farmers in Ethiopia. Small group lending, was reported to be positively associated with the loan repayment rate of the farmers. Cornett et al. (2013) looked at how the pre-crisis health of banks was associated with the probability of receiving and repaying TARP capital. They reported that financial performance characteristics associated with the probability of receiving TARP funds varied for the healthiest against the least healthy banks. They reported that TARP under-achievers had some, but not consistent, weaknesses in income production. Abid et al. (2014) reported that the extent to which households' non-performing loans in the Tunisian banking system could be described particularly not only by macroeconomic variables but also by bad management quality. Majeske and Lauer (2013) studied the bank loan approval decision from multiple perspectives and developed a probability model to assess the predictive validity of two-way classification schemes in the context of personal credit scoring and bank loan applications. Lin et al. (2014) performed an empirical investigation on bank equity risk under bailout programs of loan guarantee and/or equity capital injection.

2. The proposed study

This paper presents an empirical investigation to determine factors influencing on loan repayment in one of Iranian banks named Sepah Bank over the period 2012-2013. Fig. 1 demonstrates the structure of the proposed study.

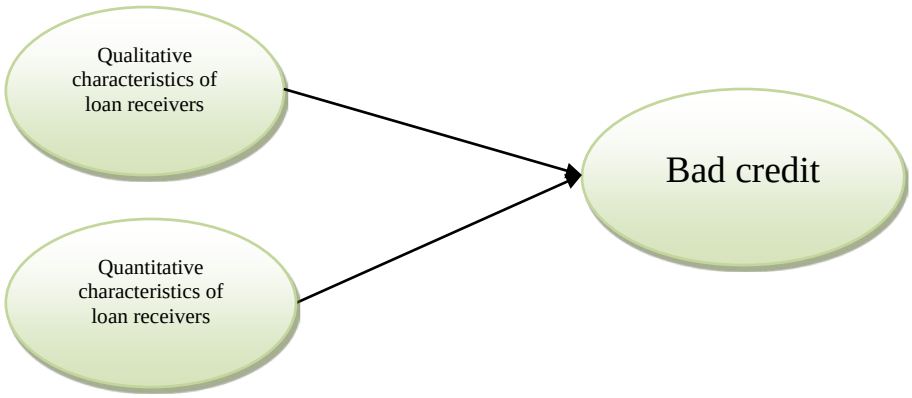
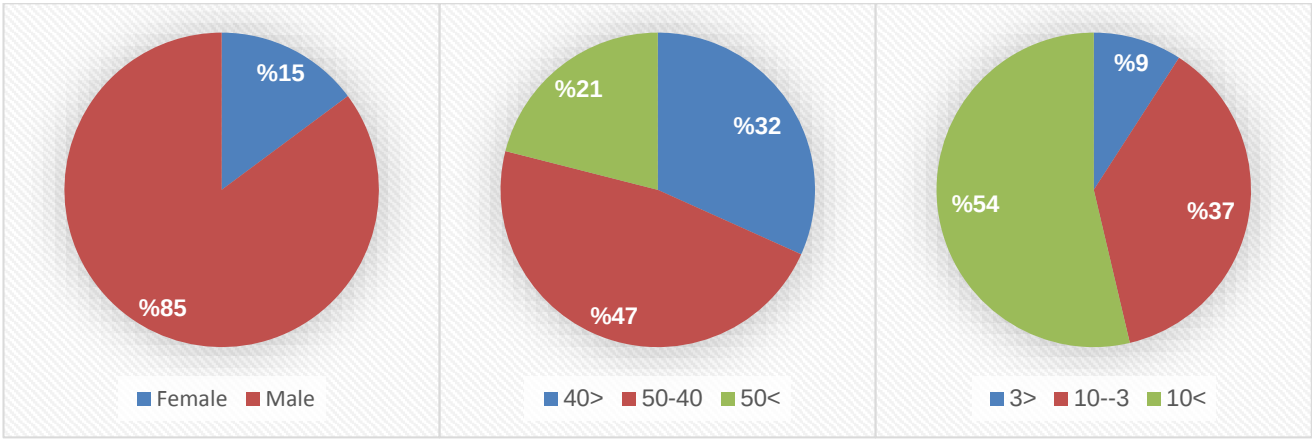


Fig. 1. The structure of the proposed study

As we can observe from the structure of Fig. 1, the study investigates the effects of two variables on having bad credit. In our study there were 1090 firms received loans from Bank Sepah and the study determines the sample size as follows,

$$n = \frac{N \times z_{\alpha/2}^2 \times p \times q}{\varepsilon^2 \times (N-1) + z_{\alpha/2}^2 \times p \times q}, \quad (1)$$

where N is the population size, $p = 1 - q$ represents the yes/no categories, $z_{\alpha/2}$ is CDF of normal distribution and finally ε is the error term. Since we have $p = 0.5, z_{\alpha/2} = 1.96$ and N=1090, the number of sample size is calculated as n=290. Fig. 2 demonstrates personal charactersitics of the participants.



Gender Age Expertise of work with bank

Fig. 2. Personal characteristics of the participants

In our survey, 106 of participants had bad credit. In addition, 85 percent of the respondents were male, 80% had at least 40 years of age and 91% of them maintained, at least, 3 years of cooperation with bank. Table 1 demonstrates the summary of some basic statistics on quantitative data. The table also shows the results of unit root test using the method developed by Im et al. (1997).

Table 1
The summary of some basic statistics

Variable	Mean	Median	Std. deviation	Min	Max	W-stats	P-value
Working capital turnover ratio	3.1304	3.1406	0.6444	2.0205	4.2222	112.567	0.000
Receivable accounts period	0.3263	0.3266	0.0602	0.2201	0.4287	33.832	0.009
Cash ratio	0.3267	0.3276	0.059	0.2202	0.4289	59.543	0.0001
Current ratio	0.3443	0	0.4754	0	1	21.003	0.0015
Ratio of current liabilities to value added	0.2758	0.2752	0.0321	0.22	0.3289	21.809	0.000
Leverage ratio	0.1047	0.118	0.1907	-0.22	0.427	43.128	0.002
Total liabilities	120.7	110.5	20.9	19.5	950.5	77.111	0.008
Current assets	450.6	550.7	20.7	110.7	400.19	21.109	0.027
Loan	700	650	119.6	120	990	32.121	0.0036
Customers' turnover	112.82	113.13	6.16	102.03	122.86	10.854	0.042
Mean account	179.627	179.5	30.2777	128	234	18.131	0.012

As we can observe from the results of Table 1, all statistics associated with W-stats are meaningful when the level of significance is five percent and we can conclude that they are stationary variables.

3. The results and discussion

In this section, we present the results of the implementation of regression function on testing different qualitative and quantitative variables on loan repayment. To examine different factors, the study uses Wald statistics and Table 2 shows details of our findings. In terms of qualitative factors, as we can see from the results of Table 2, while age and gender did not represent meaningful impact on loan repayment, experience of work with bank has shown some meaningful impact on loan repayment. In fact, as customers setup a long term relationship with bank, it is less likely that customers face with bad credit. In other words, banks had better give loans to customers with good record of credit in the past. In terms of quantitative factors, among several financial figures, only the effects of working capital period, leverage ratio, current assets have had positive relationship with loan repayment. In other words, customers with relatively high ratio of loan with banks will more likely face with bad credit. However, when a customer manage to have good record of current assets, customers may be expected to have better capabilities to pay their loans.

Table 2
The summary of regression analysis

Variables	β	Error	Wald	Sig.	Exp(p)	Result
Gender	0.161	0.405	0.158	0.691	1.174	Rejected
Age	0.157	0.181	0.749	0.387	1.17	Rejected
Experience of work with bank	-0.209	0.097	4.609	0.037	0.801	Confirmed
Having overdue loan	0.609	0.128	7.901	0.001	1.782	Confirmed
Working capital turnover	-0.401	0.109	4.801	0.021	0.711	Confirmed
Average payment period	-0.321	0.445	0.519	0.471	0.726	Rejected
Cash flow ratio	-0.161	0.102	4.118	0.041	0.614	Rejected
Current ratio	-0.148	0.226	0.432	0.511	0.862	Rejected
Ratio of current liabilities to value added	0.054	0.075	0.524	0.469	1.056	Rejected
Leverage ratio	-0.108	0.115	0.878	0.349	0.898	Rejected
Total liabilities	0.441	0.128	4.112	0.017	1.561	Confirmed
Current assets	-0.5	0.261	3.659	0.046	0.607	Confirmed
Loan	0.64	0.248	6.678	0.01	1.527	Confirmed
Customers' turnover	0.29	0.229	1.6	0.206	1.337	Rejected
Mean account	-0.023	0.276	0.007	0.934	0.977	Rejected
Intercept	0.112	0.017	1.416	0.234	1.102	Rejected

The results of this study are consistent with other existing studies in the literature (Behr & Sonnekalb, 2012; Hill & Sarangi, 2012; Chapman & Liu, 2013; Baland et al., 2013; Vu et al., 2015; Chapman & Lounkaew, 2015).

4. Conclusion

In this paper, we have presented an empirical investigation to study the qualitative/quantitative factors influencing on non-repayment of loans in one of the oldest Iranian banks located in city of Tehran, Iran. In this study, while age and gender did not show any meaningful impacts on loan repayment, experience

of work with bank has demonstrated some meaningful impact on loan repayment. In fact, customers with long term relationship with bank would less likely faced with bad credit. In other words, banks had better give loans to customers with good record of credit in the past. In terms of quantitative factors, among several financial figures, only the effects of working capital period, leverage ratio, current assets have had positive relationship with loan repayment. In other words, customers with relatively high ratio of loan with banks would more likely face with bad credit. However, when a customer manage to have good record of current assets, customers may be expected to have better capabilities to pay their loans.

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