Identifying and ranking the factors non-performing loans in Parsian Bank's

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Abstract
Non-performing loans is one of the problems bank system. The current study aims to identify and order the factors non-performing loans by using Analytic Hierarchal Process (AHP). 15 peripheral factors have been classified in 3 factors of outer-organization, innerorganization and applicants' abilities and capacities. They have been ordered by AHP and the software Expert Choice.

Keywords: Analytic Hierarchal Process, Parsian Bank's, Non-performing loans.

1 Introduction

Since Gorton (1988) [4], economists have analysed the predictive power of macroeconomic and banking sector variables as early current account deficits to recent banking problems. The focus is on the banking sector; the securities market is ignored, even though many off balance sheet items have proved problematic. This paper does not develop models to calculate the probability of a crisis. Instead, the focus is on the most typical immediate cause of crises, namely deteriorating credit quality. Before being written off, a loan is normally classified as non-performing, when customer’s payments are in arrears. Non-performing loans (NPLs) are a highly interesting, yet often overlooked indicator of the state of the banking system. Net loan losses reported on banks’ profit and loss accounts are blurred by deductions caused by payments from recovering customers whose debt had already been written off years earlier.

Excessive credit growth often precedes banking crises (see e.g. Borio and Lowe, [1]; Demirgüç-Kunt and Detragiache [3] or Davis and Karim [2]). From the point of view of financial stability, foreign debt may be the most problematic type of credit. When a country is running a deficit, any increase in net debt is financed at the margin from abroad, by a foreign financier who may have a disadvantage in identifying risks and may continue the provision of funding when an informed domestic creditor would not. Intuitively, a nation cannot be over-indebted if citizens owe money to each other. If mortgage lending is financed with thrifty domestic customers’ deposits, many locals have substantial savings and might buy the collateral. If domestic industries’ customers spend what they earn instead of what they borrow from abroad, companies’ cash flow is on relatively stable ground. And if the younger generation owes money to the older generation, bequests...
will solve the debt problem. None of the above arguments applies to foreign debt. Also, Karlo Kauko [5] analysed the deterioration of bank credit quality during the recent financial crisis in a crossnational sample. In bank systems which deal with fund flow, true and fast flow of resources and spending shows system health and effectiveness of its performance ways. It is of high importance specially in banks and finance and credit institutes, because these institutes can play the best role in performing monetary policies in any country.

Davood Tabarsa [6] main factors making outstanding claims in banking industry based on the existing theoretical and experimental basics including special factors of Melli bank and macro-economic factors. In this paper, we use AHP method for ranking the factors non-performing loans in Parsian Bank's.

2 The research quations

In this paper, we want to answer the following questions using AHP.
Main question:
What are the main factors influencing on outstanding claims of Tehran province Parsian bank?
Peripheral questions:

1. What are outer-organization (country level) factors influencing on outstanding claims of Tehran province Parsian bank?
2. What are inner-organization (bank network) factors influencing on outstanding claims of Tehran province Parsian bank?
3. What are abilities and capacities of facilities applicants factors influencing on outstanding claims of Tehran province Parsian bank?

3 Data analysis and instruments

The population of this study contains all managers, branch bosses and experts of Tehran province Parsian bank who were fully aware of this field. In this research 30 people have been selected as experts among whom the questionnaire of paired comparison (AHP) has been distributed.
The place area of this study includes all branches of Parsian bank which are active. Required data have been collected in 2014. In Table 1, we show main factors and abbreviation. The process of this research based on AHP was constructed on strict steps.

First step: developing hierarchy tree of AHP.
Second step: main factors weight.
Third Step: Calculating Second Level Items (Local Weights).
Fourth Step: Final Weight of Items.

In first step, first regarding reviewing the related literature and using experts of Tehran province Parsian banks, decision making tree hierarchy should be designed to identify factors influencing on banks outstanding claims. As a product of this process, 15 influential factors have been classified under 3 main factors which are as in Table 1.

In the second step, to calculate each of these main factors, a questionnaire like AHP questionnaire (paired comparison) has been provided to get experts ideas. This questionnaire consists of a matrix for paired comparison of factors. Therefore, there are as many comparisons as the number of items. As level 1 has three factors the number of comparisons and items is obtained by $\frac{n(n+1)}{2} = \frac{3(3-1)}{2} = 3$. After completing the questionnaires, the rate of incompatibility of each of these experts has been obtained separately. Finally 30
questionnaires have been considered and by the software Expert Team Choice, people ideas (geometric mean) have been mixed with each other. This software had different capabilities to use paired comparison matrices and to mix different people matrixes and to turn them into a unified matrix which is obtained through geometric mean of every matrix of every person.

Table 1: Main factors and Abbreviation.

| Main factors                   | Abbreviation | Main factors                                                                 | Abbreviation |
|-------------------------------|--------------|--------------------------------------------------------------------------------|---------------|
| Outer-organization            | A            | The difference between bank facilities rate and market interest rate            | A1            |
|                               |              | The difference between inflation rate and banks interest rate                  | A2            |
|                               |              | Government economy structure                                                  | A3            |
|                               |              | Instability of monetary policies and frequent change of regulations           | A4            |
|                               |              | Currency rate change and dominant global economic crises                      | A5            |
| Inner-organization            | B            | Lack of a proper system for measuring credit of customers                      | B1            |
|                               |              | Facilities process quality weakness                                           | B2            |
| Facilities applicants'        | C            | Lack of enough observation in the way of spending facilities                   | B3            |
| abilities capacities          |              | Lack of proper management in assets items                                     | B4            |
|                               |              | Longer getting of examining and paying facilities                             | B5            |
| Economic sectors managers'    |              | lack of mastery over management and its relevant parts                         | C1            |
| lack of mastery over          |              | Some activities' lack of justifiability (in terms of type and capacity)        | C2            |
| market and rivals             |              | Lack of implementing expert people and lack of staff evaluation system and staff| C3            |
|                               |              | job security and motivation instruments                                         | C4            |
| Some plans strong dependence  |              | Some plans strong dependence on bank credits and low ability of loan receivers | C5            |
| on bank credits and low       |              | financial ability                                                             |                |
| ability of loan receivers     |              |                                                                                  |                |

In Table 2, we propose main factors comparisons of level 1.

Table 2: Group comparisons of level 1 (main factors).

| Main factors | Weight | Rank |
|--------------|--------|------|
| A            | 0.552  | 1    |
| B            | 0.291  | 2    |
| C            | 0.157  | 3    |

The result of Table 2 shows the weight of main factors in which the factor of outer-organization (country level) with the relative weight of 0.552 ranks first, the factor of inner-organization (bank network) with the relative weight of 0.291 rank second and the factor of facilities applicants' abilities and capacities with the relative weight of 0.157 ranks third.

In Table 3, we propose peripheral factors – outer-organization comparisons of level 2.
Table 3: Peripheral factors – outer-organization comparisons of level 2.

| Peripheral factors/outer organization | Weight | Rank |
|---------------------------------------|--------|------|
| A1                                    | 0.088  | 5    |
| A2                                    | 0.185  | 3    |
| A3                                    | 0.112  | 4    |
| A4                                    | 0.355  | 1    |
| A5                                    | 0.26   | 2    |

IR=0.09<0.1

The results of Table 3 show that instability of monetary policies and frequent changes with the relative weight of 0.355 rank first, the factor of currency rate change and economical crises in the world with the relative weight of 0.26 ranks second, the difference of inflation rate and banks interest rate with the relative weight of 0.185 ranks third, governmental economy structure and imperative outlook to credit sector with the relative weight of 0.112 ranks fourth, the difference of bank facilities rate with market interest rate with the relative weight of 0.088 ranks fifth.

In Table 4, we propose inner-organization comparisons of level 2.

Table 4: Inner-organization comparisons of level 2.

| Inner-organization | Weight | Rank |
|--------------------|--------|------|
| B1                 | 0.102  | 4    |
| B2                 | 0.131  | 3    |
| B3                 | 0.081  | 5    |
| B4                 | 0.332  | 2    |
| B5                 | 0.354  | 1    |

IR=0.08<0.1

The results of Table 4 show that longer getting of examining and paying facilities with relative weight of 0.354 rank first, the factor of lack of proper management in assets items with relative weight of 0.332 ranks second, the facilities process quality weakness with relative weight of 0.131 ranks third, the lack of a proper system for measuring credit of customers with relative weight of 0.102 ranks fourth and the lack of enough observation in the way of spending facilities with relative weight of 0.081 ranks fifth.

Table 5: Facilities applicants' abilities and capacities of level 2.

| Inner-organization | Weight | Rank |
|--------------------|--------|------|
| C1                 | 0.147  | 3    |
| C2                 | 0.256  | 2    |
| C3                 | 0.130  | 4    |
| C4                 | 0.399  | 1    |
| C5                 | 0.068  | 5    |

IR=0.09<0.1

The results of Table 5 show that lack of implementing expert people and lack of staff evaluation system and staff job security and motivation instruments with relative weight of 0.399 rank first, the factor of some
activities’ lack of justifiability with relative weight of 0.256 ranks second, the economic sectors managers’ lack of mastery over management and its relevant with relative weight of 0.147 ranks third, the lack of mastery over market and rivals with relative weight of 0.130 ranks fourth and the some plans strong dependence on bank credits and low ability of loan receivers financial ability with relative weight of 0.068 ranks fifth.

4 The research findings

The results of table 2 show the weight of main factors of Tehran province Parsian bank non-performing loans in which the factor of outer-organization (country-level) with weight of 0.552 ranks first, the factor of inner-organization (bank network) with weight of 0.291 ranks third, and the factor of bank facilities applicants’ abilities and capabilities with weight of 0.157 ranks third.

Table 6: Ranking influential factors of non-performing loans of Tehran province Parsian bank based on AHP.

| Main factors | Weights | Subindex factors | Final weights | Final ranks |
|--------------|---------|------------------|---------------|-------------|
| A            | 0.552   | A1               | 0.49          | 1           |
|              |         | A2               | 0.102         | 6           |
|              |         | A3               | 0.062         | 8           |
|              |         | A4               | 0.196         | 3           |
|              |         | A5               | 0.144         | 4           |
| B            | 0.291   | B1               | 0.29          | 2           |
|              |         | B2               | 0.038         | 11          |
|              |         | B3               | 0.024         | 12          |
|              |         | B4               | 0.096         | 7           |
|              |         | B5               | 0.103         | 5           |
| C            | 0.157   | C1               | 0.022         | 13          |
|              |         | C2               | 0.039         | 10          |
|              |         | C3               | 0.019         | 14          |
|              |         | C4               | 0.060         | 9           |
|              |         | C5               | 0.010         | 15          |

5 Conclusion

In this paper, we have presented AHP method for ranking of influential factors of non-performing loans of Tehran province Parsian bank. Although it is impossible to limit all problems of banks dealing with increasing outstanding claims to the factors mentioned in the current research, removing these factors can decrease rising trend of outstanding claims. It seems that improvement from inside and interaction from outside is the best motto for banks to change the existing situation. Improving the internal trend of banks before, during and after giving facilities and on the other hand, full interaction with all organizations and institutions for getting bank facilities can stop banks rising trend of outstanding claims and make the trend falling.
References

[1] C. Borio, P. Lowe, Assessing the risk of banking crises, BIS Quarterly Review, Dec. (2002).

[2] E. P. Davis, D. Karim, Comparing early warning systems for banking crises, Journal of Financial Stability, 4 (2008) 89-120.
   http://dx.doi.org/10.1016/j.jfs.2007.12.004

[3] A. Demirgüç-Kunt, E. Detragiache, Cross-country empirical studies of systemic bank distress: a survey, IMF Working paper, (2005).

[4] G. Gorton, Banking panics and business cycles, Oxford Economic Papers, 40 (1998) 751-781.

[5] K. Kauko, External deficits and non-performing loans in the recent financial crisis, Economics Letters, 115 (2012) 196-199.
   http://dx.doi.org/10.1016/j.econlet.2011.12.018

[6] D. Tabarsa, R. Jafari, Identifying and ordering the influential factors on outstanding claims by using Analytic Hierarchal Process (AHP), Iranian journal of Business and Economic, (2014).