

Investigating on effects of different granting loans on bank deposits

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CHRONICLE

Article history:

Received September 18, 2012

Received in revised format

21 December 2012

Accepted 21 December 2012

Available online

December 22 2012

Keywords:

Banking industry

Bank deposit

Loan

ABSTRACT

This paper investigates the relationship between different granting loans and bank deposits in some governmental banks in province of Semnan, Iran. For the proposed study of this paper, equipment of resources includes cash account, zero-interest account, short term investment and long term investment and these are considered as dependent variables. There are also seven types of granting loans devoted to customers, which are partnership loans, zero-interest loans, civic participation, contract quantity loans, future contract loans, rent-purchase loans and installment sales loans. The study considers the financial information of 171 governmental banks located in province of Semnan, Iran over the period 2006-2011. The results of our study indicate that five variables maintain positive impact on dependent variable. The highest impact belongs to Partnership loans (0.34), followed by Sales loans (0.24), contract quantity loans (0.21) and Zero-interest loans (0.16) and Future contract loans (0.14) come in the last position. The study also uses Freedman test to rank dependent factors and the results indicate that short-term investment is number one priority followed by long term investment and the other two options including zero-interest and cash accounts are in lower priority.

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1. Introduction

One of the most important issues in banking industry is to prepare appropriate packages to increase their bank deposits. In fact, one important criterion to measure the relative efficiency of banking industry is to find out how much deposits in different forms exist in their system. There are literally various works devoted on the relationship between bank deposit and loans. Depken II et al. (2010) for instance performed an empirical investigation and reported that Sub-S deposit (loan) rates are equal to or lower (higher) than similar C corporation bank rates and therefore there was a little evidence of any tax benefits accruing to Sub-S bank clients. Bushman and Williams (2012) estimated two methods of the forward-looking orientation reflected in discretionary loan provisioning practices within a country. They reported that proposals to change loan loss accounting embed substantial risks of unintended consequences, as gains from reducing pro-cyclicality could be swamped by losses in

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transparency, which dampen market discipline and increase the scope for less prudent risk-taking by banks. De Graeve et al. (2007) investigated the pass-through from market interest rates to retail bank interest rates. They suggested a heterogeneous method and implemented it to the Belgian banking market. They reported a significant amount of the heterogeneity in bank pricing policies could be explained by the bank lending channel and the relative market power hypothesis. They also explained that the long-term pass-through was basically less than one-for-one, rejecting the completeness hypothesis.

Ioannidou and Penas (2010) investigated the impact of deposit insurance on the risk-taking attitude of banks in the context of a quasi-natural experiment using detailed credit registry information in a case study from Bolivia. They compared the risk-taking behavior of banks before and after the introduction of some deposit system and reported that in the post-deposit insurance period, banks were more likely to initiate riskier loans. They also reported some evidence that the increase in risk-taking was due to the decrease in market discipline from large depositors.

Uchida and Nakagawa (2007) studied whether Japanese banks had been following herd behavior in the domestic loan market from 1975 through 2000 and reported that a total of some 5 trillion yen of loan increase by city banks during the period of 1987–1989 could be attributed to irrational herd behavior. Hülsewig et al. (2007) addressed the credit channel in Germany by using aggregate information and presented a stylized framework of the banking firm in which banks decided on their loan supply in the light of expectations about the future course of monetary policy.

Affinito and Tagliaferri (2010) investigated the ex ante determinants of bank loan securitization based on various econometric techniques on Italian individual bank data over the period 2000- 2006. They reported that bank loan securitization was a composite decision and banks, which were less capitalized, less profitable, less liquid and burdened with troubled loans were more likely to perform securitization, for a larger amount and earlier.

2. The proposed study

The proposed study of this paper investigates the relationship between different granting loans and bank deposits in some governmental banks in province of Semnan, Iran. For the proposed study of this paper, equipment of resources includes cash account, zero-interest account, short term investment and long term investment and these are considered as dependent variables. There are also seven types of granting loans devoted to customers, which are partnership loans, zero-interest loans, civic participation, contract quantity loans, future contract loans, rent-purchase loans and installment sales loans. The main hypothesis of this paper is as follows,

1. What are different kinds of loans and facilities influencing deposits in various governmental banks in province of Semnan, Iran.
2. What are the rankings of different influencing facilities on banks' deposits in governmental banks in province of Semnan, Iran.

2.1. Research hypotheses

Main hypothesis: Granting loans attract deposits in governmental banks in province of Semnan, Iran.

The main hypothesis of this survey is stated in the following sub-hypotheses,

1. Granting partnership loans attract deposits in governmental banks in province of Semnan, Iran.
2. Granting civic participation loans attract deposits in governmental banks in province of Semnan, Iran.
3. Granting installment Sales loans attract deposits in governmental banks in province of Semnan, Iran.
4. Granting contract quantity loans attract deposits in governmental banks in province of Semnan, Iran.
5. Granting future contract loans attract deposits in governmental banks in province of Semnan, Iran.

- 6. Granting rent-purchase loans attract deposits in governmental banks in province of Semnan, Iran.
- 7. Granting zero-interest loans attract deposits in governmental banks in province of Semnan, Iran.

The proposed study of this paper considers the financial information of 171 governmental banks located in province of Semnan, Iran over the period 2006-2011. Table 1 shows details of different kinds of financial resources,

Table 1
Descriptions of various variables

	Variable types	Title	Scale
Equipment of resources	Dependent	Cashing account (M8)	Ordinal
	Dependent	Zero-interest account (M9)	Ordinal
	Dependent	Short term investment (M10)	Ordinal
	Dependent	Long term investment (M11)	Ordinal
Facilities	Independent	Partnership loans (M2)	Ordinal
	Independent	Zero-interest loans (M1)	Ordinal
	Independent	Civic participation (M4)	Ordinal
	Independent	Contract quantity loans (M5)	Ordinal
	Independent	Future contract loans (M6)	Ordinal
	Independent	Rent-purchase loans (M7)	Ordinal
	Independent	Installment sales loans (M3)	Ordinal

The proposed study of this paper uses regression analysis based on ordinary least square technique to analyze the relationship between equipment of resources and facilities. Table 2 demonstrates details of some basic statistics associated with independent and dependent variables.

Table 2
Statistical observations

	Var.	Title	min	max	mean	Std. dev.	Z	Sig.
Equipment of resources	M8	Cashing account	170	33523	4678.6	4665.8	2.183	0.000
	M9	Zero-interest account	328	23187	4042.4	4232.0	2.485	0.000
	M10	Short term investment	810	76184	13089	12544.7	2.432	0.000
	M11	Long term investment	11	34912	7498.1	7434.0	2.530	0.000
Facilities	M2	Partnership loans	0	15653	1861.68	2681	3.187	0.000
	M1	Zero-interest loans	25	33165	21324.8	4646.9	4.058	0.000
	M4	Civic participation	0	50693	1880.16	5437.37	4.770	0.000
	M5	Contract quantity loans	0	7131	405.61	913.55	4.296	0.000
	M6	Future contract loans	0	3000	229.54	520.74	2.285	0.000
	M7	Rent-purchase loans	0	401	10.6374	50.03	6.798	0.000
	M3	Installment sales loans	33	107125	67368	18529	4.311	0.000

The first step is to use Kolmogorev-smirnov (KS) test (Boes et al., 1974) to verify the normality of the data. Based on the results of KS, all Z values shown in Table 2 are statistically significant and we can conclude that the data are not normally distributed. Therefore, we need to take the necessary actions to normalize the data for the purpose of regression analysis and we have used logarithm of the data to normalize the data and use them for the purpose of regression analysis. The proposed model of this paper uses the following regression function

$$Y = \sum_{i=1}^7 \beta_i M_i, \tag{1}$$

where $M_i, i=1, \dots, 7$ are independent variables defined in Table 1, $\beta_i, i=1, \dots, 7$ are coefficients of regression analysis and Y is the dependent variable.

3. The results

We first examine the main hypothesis of the study and in our survey, two variables of civic participation and rent-purchase loans are not statistically significant. However, other variables are statistically meaningful and they are summarized as follows,

$$Y=0.16M_1+0.34M_2+0.14M_6+0.21M_5+0.24M_3 \quad P\text{-value}=0.000 \quad (2)$$

As we can observe from the results of Eq. (2), five variables maintain positive impact on dependent variable. The highest impact belongs to Partnership loans (0.34), followed by Sales loans (0.24), contract quantity loans (0.21) and Zero-interest loans (0.16) and Future contract loans (0.14) come in the last position. In other word, an increase of one unit in any components of these five variables will increase deposit proportion with their rates.

3.1. The first sub hypothesis: Relationship between bank deposit and granting partnership loans

The first hypothesis is associated with the relationship between bank deposit and granting partnership loans. Table 3 demonstrates the results of regression analysis.

Table 3

The results of regression analysis for the first sub-hypothesis

Independent Variable	Dependent variable	Regression function	Statistics	Coefficient of determination	Correlation	Sig.
Partnership loans	Bank deposits	$Y=0.62X$	64.39	0.27	0.62	0.000

As we can observe from the results of regression analysis, there is a positive and meaningful relationship between independent variable and bank deposit.

3.2. The second sub hypothesis: Relationship between bank deposit and civic participation loans

The second hypothesis is associated with the relationship between bank deposit and civic participation loans. Table 4 demonstrates the results of regression analysis.

Table 4

The results of regression analysis for the second sub-hypothesis

Independent Variable	Dependent variable	Regression function	Statistics	Coefficient of determination	Correlation	Sig.
Civic participation	Bank deposits	$Y=0.52X$	27.39	0.14	0.52	0.000

As we can observe from the results of regression analysis, there is a positive and meaningful relationship between independent variable and bank deposit.

3.3. The third sub hypothesis: Relationship between bank deposit and Installment sales loans

The third hypothesis is associated with the relationship between bank deposit and Installment sales loans. Table 5 demonstrates the results of regression analysis.

Table 5

The results of regression analysis for the third sub-hypothesis

Independent Variable	Dependent variable	Regression function	Statistics	Coefficient of determination	Correlation	Sig.
Installment sales loans	Bank deposits	$Y=0.53X$	33.87	0.16	0.53	0.000

As we can observe from the results of regression analysis, there is a positive and meaningful relationship between independent variable and bank deposit.

3.4. The fourth sub hypothesis: Relationship between bank deposit and contract quantity loans

The fourth hypothesis is associated with the relationship between bank deposit and contract quantity loans and Table 6 shows the results of regression analysis.

Table 6

The results of regression analysis for the fifth sub-hypothesis

Independent Variable	Dependent variable	Regression function	Statistics	Coefficient of determination	Correlation	Sig.
Installment sales loans	Bank deposits	$Y=0.44X$	45.32	0.21	0.44	0.000

As we can observe from the results of regression analysis, there is a positive and meaningful relationship between independent variable and bank deposit.

3.5. The fifth sub hypothesis: Relationship between bank deposit and future contract loans

The fifth hypothesis is associated with the relationship between bank deposit and future contract loans and Table 7 presents the results of regression analysis.

Table 7

The results of regression analysis for the fifth sub-hypothesis

Independent Variable	Dependent variable	Regression function	Statistics	Coefficient of determination	Correlation	Sig.
Future contract loans	Bank deposits	$Y=0.26X$	10.68	0.05	0.26	0.000

As we can observe from the results of regression analysis, there is a positive and meaningful relationship between independent variable and bank deposit.

3.6. The sixth sub hypothesis: Relationship between bank deposit and rent-purchase loans

The sixth hypothesis is associated with the relationship between bank deposit and rent-purchase loans and Table 8 presents the results of regression analysis.

Table 8

The results of regression analysis for the sixth sub-hypothesis

Independent Variable	Dependent variable	Regression function	Statistics	Coefficient of determination	Correlation	Sig.
Rent-purchase loans	Bank deposits	$Y=0.39X$	45.32	0.11	0.39	0.000

As we can observe from the results of regression analysis, there is a positive and meaningful relationship between independent variable and bank deposit.

3.7. The seventh sub hypothesis: Relationship between bank deposit and zero-interest loans

The seventh hypothesis is associated with the relationship between bank deposit and zero-interest loans and Table 9 presents the results of regression analysis.

Table 9

The results of regression analysis for the sixth sub-hypothesis

Independent Variable	Dependent variable	Regression function	Statistics	Coefficient of determination	Correlation	Sig.
Rent-purchase loans	Bank deposits	$Y=0.32X$	27.52	0.14	0.32	0.000

As we can observe from the results of regression analysis, there is a positive and meaningful relationship between independent variable and bank deposit. Another issue is to learn the impact of different factors and rank them using Freedman test. In our survey, the test has yield 743.075 with 6 degrees of freedom and Sig. =0.000. Table 10 shows details of ranking various factors.

Table 10

The results of Freedman test for different loans

Var.	Zero-interest	Partnership	Civic participation	Future contract	Contract quantity	Installment sales	Rent-purchase
Mean	5.24	4.48	2.44	2.44	3.07	6.79	1.44
Rank	2	3	6	6	4	1	7

As we can observe from the results of Table 10, installment sales loans are ranked one followed by zero-interest loans and partnership loans. In addition, contract quantity, civic participation and rent-purchase come in the last priorities. Next, we have ranked various forms of deposits for attracting customers based on Freedman test where the statistics is equal to 98.2 with three degrees of freedom and Sig. value of 0.000 and Table 11 summarizes them as follows,

Table 11

The summary of Freedman test on ranking various techniques of deposits

Var.	Cash account	Zero-interest account	Short term investment	Long term investment
Mean	1.82	1.89	3.54	2.74
Rank	4	3	1	2

It is obvious from the results of Table 11 that short-term investment is number one priority followed by long term investment and the other two options including zero-interest and cash accounts are in lower priorities.

4. Conclusion

In this paper, we have investigated the impact of seven types of loans granted to various customers in some major governmental banks in province of Semnan, Iran. The study has gathered the necessary information and using linear regression analysis found that five variables maintain positive impact on bank deposit, significantly. The highest impact belongs to Partnership loans (0.34), followed by Sales loans (0.24), contract quantity loans (0.21) and Zero-interest loans (0.16) and Future contract loans (0.14) come in the last position. The study has also ranked the effects of different deposits and reported that short-term investment was number one priority followed by long term investment and the other two options including zero-interest and cash accounts were in lower priorities.

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