

The Impact of Liquidity Risk Management on Selected Islamic Banks in Pakistan

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Abstract: The purpose of this particular study is to determine if there exists any liquidity risk in Islamic banks of Pakistan and its effect on the resilience of the industry in the country. Participants of this study were employees of Islamic banks. Primary data was collected from three major cities of the country. The study discovers the situation of liquidity risk management. Further, the attitude of Central bank and Islamic banks towards liquidity risk management policies. Regression models were applied in order to analyse the impact of liquidity risk management on Islamic banks. The findings show the effect of variable like rational depositor and training on the liquidity risk. Central bank is providing Islamic banks with adequate rules and regulations. Islamic banks practices to control liquidity according to rules and also the requirement of the depositors. The results of this study offer a useful insight for Islamic banks worldwide.

Keywords: liquidity risk man agement, Islamic banking, deposits, withdrawal

1. INTRODUCTION

The first Islamic commercial bank, Dubai Islamic Bank, was opened in 1974 in the United Arab Emirates (UAE). Since its inception over the last three decades, Islamic banking industry has been growing continuously. Continuous increase in the activities of Islamic banks is one of the reasons for receiving attention globally (Omar and Mondher, 2010). The total estimated number of Islamic banks around the world has reached about 400, including 53 Muslim and non-Muslim countries. In 2009, estimated funds of Islamic banking sector have reached 500 billion US Dollars to 1 trillion US Dollars with an annual growth of 10%-20% (Eedle, 2009).

Banking industry of Pakistan has shown major changes over the period of 62 years. It faces several problems like capital inadequacy, socio-economic condition of the country and uncertainty due to political instability. Subsequent changes have been made by State Bank of Pakistan (SBP) in accordance with the State Bank of Pakistan Act (1956), which motivates the private sector to set up banks and financial institutions. Additionally in 1992, privatization developments of banking sector motivated the local investors as well as the foreign banks (Ahmad, Malik, and Humayoun, 2010). On January 31, 2002, Meezan bank was granted license from SBP and it started its operations from March 20, 2002, as the first Islamic bank of the country. Since then, Islamic banking industry is showing continuous growth and surpassed the growth rates recorded by conventional banks during past 5 years. Now there are 6 full-fledged Islamic Banks (IBs) and 12 conventional banks with Islamic Banking Branches (IBBs) operating in the Pakistan. Currently, market share of the deposits stands at 4.2%. There are now more than 358 branches in over 50 cities and towns covering four provinces of the country and Azad and Jammu Kashmir (Javed, 2009).



A. Objectives of the study

This paper aims to analyze the liquidity risk management in Pakistani Islamic banking industry by measuring the demand for liquidity withdrawal from depositors and bank's allocation of deposits for managing liquidity. Particularly it aims to analyze the internal Islamic mechanism for liquidity management with the intention to understand liquidity behavior of depositors and liquidity management of Islamic banks and to suggest management recommendations to improve current practices of liquidity management. The paper also examines liquidity management practices to meet the liquidity demand from depositor and level of implementation of rules and regulations provided by central bank to control the liquidity risk management in Islamic banks.

B. Liquidity Risk in Banking Institutions

Liquidity risk in a bank means the bank's inability to meet its obligations to the depositors due to shortage of funds or increase of funds in assets which doesn't incur any unexpected cost or damages (Ismail, 2010). Liquidity risk in banks arises when a depositor withdraws more funds than the banks are available with (Hubbard, 2002), or it can also occur due to depositor's inability to pay banks for its financial obligations. Banks may have to face liquidity problem when depositors want to withdraw amount which isn't affordable for the bank at that moment. Moreover, the banks take decision to cease the loans when depositors are not in position to payoff the loan. The techniques to manage the regular demand for liquidity include; more investment of funds in more liquid loans and/or maintaining more cash in hand; diversifying the sources of funds from various depositors; and using the Central bank as the last option for emergency liquidity (Greenbaum and Thakor, 2007).

C. Liquidity Risk Management in Islamic Banks

In an attempt to develop a strong liquidity management program the Islamic banks should make arrangements across real business transaction (Antonio, 1999). This is for the reason that operation of Islamic banks is based on real and asset based contracts which links business life cycle together, collaboration among business partners and good conduct of stakeholders. This is the cornerstone of all Islamic banking operations. Therefore, the reason for liquidity problem would be disharmony between business partners or inevitable downturn of business conditions (Ismal, 2010). Due to some specific internal and external aspects of Islamic banks, the risk of liquidity has minimized. Values and principles of Sharia prevail inside Islamic bank which care for bank's management, share holders and stakeholders as valued business partners (Yaqoobi, 2007). Thus, a system based on these values and principles ensures cooperation, transparency, symmetric information and equilibrium in the allocation on both the asset and liability side. In Islamic Financial mechanism, external liquidity risk problem is reduced, as it only engages in real business activities because Sharia requires the attachment of real asset to every Islamic Financial market contract (Kahf, 2000).

Islamic banking uses Profit and Loss Sharing (PLS) concept which reduces liquidity risk by sharing risk among business participants. PLS helps in balancing assets and liabilities because the concept of PLS necessitates a full concern and understanding among all parties in business. If actual return is less than expected return, due to uncertainty on return on deposits, some rational depositors may seek to withdraw their deposits (Ismail, 2010). Banks have to be very careful for liquidity management because once liquidity risk problem takes place the banks will be left with very limited options. Islamic banks can also face the reputation risk when it fails in management of governance and Sharia compliance, business strategies, and operations. In this case, most of the time, government of that country comes forward to help out for immediate liquidity assistance and, in severe cases, take over the bank which causes a negative public image of the operations of Islamic banks (Antonio, 1999). According to Ismal (2010) Islamic banks have organized some internal guidelines and principles based on IFSB guides in order to improve liquidity management. These guidelines include: Establishment of appropriate



liquidity risk management policies; Measuring and monitoring liquidity risk; and to carry out prudential and sharia-compliant Islamic banking operations. Islamic banks have to make appropriate decisions regarding business, selection of entrepreneurs and to balance liquidity establishing relationships with other Islamic banks.

2. RESEARCH METHODOLOGY

This paper incorporates the empirical data analyses approach, in which practices of Islamic banks to manage liquidity risk, factors that affect liability and asset side, and liquidity behavior of depositor, were analyzed using the survey questionnaire. Thus, after applying different statistical analyses on the facts and figures gathered through questionnaire survey we were able to suggest some guidelines to control liquidity risk and enhance the productivity of the Islamic banking industry in Pakistan. The target respondents are working in Islamic banks as president, director, general manager, head of Risk Management team or division who is involved in the decision making process of managing liquidity risk in the banks. The responses were collected from Islamic banks of three big cities in Pakistan i.e. Islamabad, Lahore and Sargodha. The Islamic banks selected for this study are; Meezan Bank Limited, Standard chartered bank, Alfalah Bank Ltd., Dubai Islamic bank Pakistan, Muslim commercial bank Ltd. and United bank Ltd. The data collected ranges from 2006 to 2011. The banks selected for this process primarily fell into these two categories i.e. full-fledged Islamic banks and Banks with a limited Islamic window. The sample size for this study is 100 bankers working in Islamic banks. 120 questionnaires were distributed among the employees of these banks, out of which 100 employees responded in total.

Different statistical analyses were used to analyze the each response and their potential effect on liquidity risk management. This process includes descriptive statistics and multiple regression models for different sets of variables. In the table of descriptive statistics (See appendix), the range, minimum values, maximum values, mean values, value of standard deviation, variance and skewness of the variables are shown. Range gives the idea of the spread of the values. Means value provides the idea about the central tendency of the values of the variables. Number of observation of each value is 100. Standard deviation and the extreme values (minimum in comparison to maximum value) give the idea about the dispersion of the values of a variable from its mean value. Skewness is used to see the normality of the variables. Since different units of measure have been used for different variables the dispersion of a variable using standard deviation can't be compared to that of other variable unless both the variables have the same unit of measure. But still these statistics are helpful to have an idea about the central tendency and the dispersion of a variable in absolute terms rather than relative terms.

3. REGRESSION ANALYSIS

Simple regression analysis is conducted on different sets of variables to check the impact of liquidity risk management on selected Islamic banks in Pakistan.

The first regression model is applied on the following set of variables.

A. Dependent variable:

• Islamic bank's practice to regularly calculate and analyze the pattern of liquidity (Y)

B. Independent variable:

- Islamic banks rely on cash reserves to meet daily liquidity withdrawal (X₁)
- Islamic bank's practice to communicate depositors with big amount of deposits about their withdrawal time/schedule (X₂)
- Rely on CAMELS approach to make liquidity risk management decisions (X₃)
- Islamic bank's practice to ask depositor for extra days when liquidity demand exceeds from bank's reserves (X₄)

Patternt = $\beta_0 + \beta 1$ Cash reservest + $\beta 2$ Communicatet + β_3 CAMELSt + β_4 Exceeds reservet (1)

R Square	.194
F (sig.)	.000
Constant (β_0)	21
Cash Reserves (β_1)	.256
Communicate (β_2)	.168
Camels (β_3)	.197
Exceeds Reserve (b_4)	.06

TABLE I.	REGRESSION	ANALYSIS

In Table I, the results of multiple regression analysis are given. Regression model is applied to check the best predictors of banks practices to regularly calculate and analyzes pattern of liquidity withdrawal for the management of anticipated demand for liquidity from depositor. The combination of variables to predict rely on bank's practices from rely on cash reserve, communication with depositors, CAMELS approach and when withdrawal exceeds the Islamic bank's reserves, was statistically significant as depicted by the significance value of F statistic i.e. 0.000 < 0.5. The R square value indicates that 19.4% of the variation in Islamic bank's practice to regularly calculate and analyze the pattern of liquidity management satisfaction is explained by the independent variables in the model. The Regression equation with coefficient values will be as follows:

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Pattern, = -.21+.256Cash reserves, +.168Communicate, +.197CAMELS, +.06Exceeds reservet (1a)
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Equation 1a shows the values of Beta coefficients in the model. The above equation shows that one unit change in Islamic banks reliance on cash reserves to meet daily liquidity withdrawal will bring 0.256 units increase in Islamic bank's practice to regularly calculate and analyze the pattern of liquidity. Similarly, with one unit change in Islamic bank's practice to communicate depositors with big amount of deposits about their withdrawal time/schedule, Rely on CAMELS approach to make liquidity risk management decisions and Islamic bank's practice to ask depositor for extra days when liquidity demand exceeds from bank's reserves will cause 0.168 units, 0.197 units and 0.06 units increase in Islamic bank's practice to regularly calculate and analyze the pattern of liquidity, respectively.

The next set of variables for Regression model is as follows:

C. Dependent variable:

• Islamic banks rely on State Bank Of Pakistan's rules and regulations for liquidity risk management decisions (Y)

D. Independent variable:

- Level of accuracy for State Bank Of Pakistan's rules and regulations provided for liquidity risk management in Islamic banks (X₁)
- Level of satisfaction for quality of State Bank Of Pakistan's rules and regulations for liquidity risk management in Islamic banks (X₂)
- Level of sufficiency for State Bank Of Pakistan's rules and regulations provided for liquidity risk management in Islamic banks (X₃)

Rely on State Bank of Pakistant = $\beta 0 + \beta 1$ Accuracyt + $\beta 2$ Satisfaction with State Bank of Pakistant + $\beta 3$ Suffiencyt + Ut (2)



R Square	.279
F (Sig.)	.000
Constant (β_0)	1.176
Accuracy (β_1)	.11
Satisfaction With State Bank Of Pakistan (β_2)	.008
Sufficiency (β ₃)	.59

TABLE II. REGRESSION ANALYSIS

Table II shows the Regression results of the model, which is applied to investigate the best predictors of reliance on State Bank of Pakistan's rules and regulations for liquidity risk management in Islamic banks. The combination of variables to predict reliance on State Bank of Pakistan's rules and regulations from level of accuracy, level of sufficiency and level of satisfaction with the quality of rules and regulations provided by State Bank of Pakistan were statistically significant as depicted by the significance value of F statistic i.e. 0.000<0.5. It also shows that the overall model is significant. The R square value indicates that 27.9% of the variation in reliance on State Bank of Pakistan's rules and regulations for liquidity risk management in Islamic banks were explained by the independent variables in the model. The Regression equation with coefficient values will be:

Rely on SBP, =1.176+0.11Accuracyt+0.008Satisfaction with State Bank of Pakistant+0.59Suffiencyt (2)

Equation 2a depicts the values of Beta coefficients in the model. The above equation shows that one unit change in Level of accuracy for State Bank of Pakistan's rules and regulations provided for liquidity risk management in Islamic banks will bring 0.11 units increase in Islamic banks reliance on State Bank of Pakistan's rules and regulations for liquidity risk management decisions. Similarly, with one unit change in level of satisfaction for quality of State Bank Of Pakistan's rules and regulations for liquidity risk management in Islamic banks and level of sufficiency for State Bank Of Pakistan's rules and regulations provided for liquidity risk management in Islamic banks and level of sufficiency for State Bank Of Pakistan's rules and regulations provided for liquidity risk management in Islamic banks reliance on State Bank of Pakistan's rules and regulations for liquidity risk management in Islamic banks reliance on State Bank of Pakistan's rules and regulations for liquidity risk management in Islamic banks reliance on State Bank of Pakistan's rules and regulations for liquidity risk management in Islamic banks reliance on State Bank of Pakistan's rules and regulations for liquidity risk management decisions, respectively.

The next set of variables for Regression model is:

E. Dependent variable:

• Level of satisfaction for availability of alternate investment opportunities (Y) *F. Independent variable:*

- Problems in finding prospective and profitable projects (X₁)
- Problems due to big portion of short-term time deposit in Islamic banks (X₂)
- Effect of non-performing loans on liquidity risk (X_3)
- Potential risk problems due to rationale depositor (X_4)

Alternate investment $opp_t = \beta_0 + \beta_1 Projects_t + \beta_2 Short-term Deposit_t + \beta_3 NPL_t + \beta_4 Rationale depositor_t + U_t$ (3)

R Square	319.
F (Sig.)	000.
(Constant (β_0	1.463
Projects (β_1)	384.
Short Term Deposit (β_2)	47.
NPL (β_3)	191
Rationale Depositor (b ₄)	222.

Table III. Ri	EGRESSION	Anal	YSIS
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Table III shows the results for regression model for multiple regression model. This model is applied to test the best predictors of level of satisfaction for availability of alternate investment opportunities. The combination of independent variables to predict problems in finding prospective and profitable projects, problems due to big portion of short-term time deposit in Islamic banks, effect of non-performing loans on liquidity risk and potential risk problems due to rationale depositor were statistically significant as depicted by the significance value of F statistic i.e. 0.000<0.5. The R square value indicates that 31.9% of the variation in the dependent variable is explained by the independent variables in the model. The Regression equation for this model with coefficient values will be as follows:

Alternate investment $opp_t = 1.463 + 0.384Projectst + 0.47Short-term Deposit_t - 0.191NPL_t + 0.222Rationale depositort (3a)$

Equation 3a depicts the values of Beta coefficients in the above mentioned regression model. The above equation shows that one unit change in problems in finding prospective and profitable projects will bring 0.384 units increase in level of satisfaction for availability of alternate investment opportunities. Similarly, with one unit change in problems due to big portion of short-term time deposit in Islamic banks and potential risk problems due to rationale depositor will cause 0.47 units and 0.222 units increase in the dependent variable, respectively. However, with one unit change in effect of non-performing loans on liquidity risk, the level of satisfaction for availability of alternate investment opportunities will be decreased by -0.191 units.

The last set of variables for regression model is as follows:

G. Dependent variable:

Level of satisfaction for techniques currently in use to manage the market pressure (Y)

H. Independent variable:

- Problems in finding prospective and profitable projects (X₁₁)
- Problems due to big portion of short-term time deposit in Islamic banks (X₂)
- Effect of non-performing loans on liquidity risk (X₃)
- Potential risk problems due to rationale depositor (X_4)

Market pressuret = $\beta_0 + \beta_1$ Projectst + β_2 short-term depositt + β_3 NPL_t + β_4 Rationale depositort + U_t (4)



R Square	.321
F (Sig.)	.000
Constant (β_0)	.645
Projects (β_1)	.181
Short Term Deposit (β_2)	.293
NPL (β_3)	091
Rationale Depositor (b ₄)	.218

TABLE IV.	REGRESSION	ANALYSIS
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In Table IV, the multiple regression model is applied to measure the best predictors of level of satisfaction for techniques currently in use to manage the market pressure. The independent variables in this model i.e. problems in finding prospective and profitable projects, problems due to big portion of short-term time deposit in Islamic banks, effect of non-performing loans on liquidity risk and potential risk problems due to rationale depositor are statistically significant as shown by the significance value of F statistic i.e. 0.000 < 0.5. The R square value shows that 32.1% of the variation in the level of satisfaction for techniques currently in use to manage the market pressure is explained by the independent variables in the model. The Regression equation with coefficient values will be as follows:

Market pressure, = 0.645 + 0.181Projects, + 0.293short-term deposit, - 0.091NPL, + 0.218Rationale depositort (4a)

Equation 4a shows the values of Beta coefficients in the regression model. The above equation shows that one unit change in problems in finding prospective and profitable projects will bring 0.181 units increase in level of satisfaction for availability of alternate investment opportunities. Similarly, with one unit change in problems due to big portion of short-term time deposit in Islamic banks and potential risk problems due to rationale depositor will cause 0.293 units and 0.218 units increase in the dependent variable, respectively. However, with one unit change in effect of non-performing loans on liquidity risk, the level of satisfaction for availability of alternate investment opportunities will be decreased by -0.191 units.

4. CONCLUSIONS AND RECOMMENDATIONS

This study proposes several conclusions on basis of the analysis conducted. Following are the key findings and conclusion for the development in liquidity risk management:

Analysis revealed that there is satisfactory level of availability for alternate investment opportunities in market for Islamic banks. However, Islamic banks are not availing these opportunities to invest due to rationale depositors. Islamic banks are compelled to stay away from such opportunities to avoid the liquidity risk. Whenever there is any investment opportunity available, banks tend to pass on those opportunities in the fear of sudden demand of liquidity from rationale depositor. Analysis depicts that Islamic banks have large portion of short-term time deposits which creates problems for Islamic banks to fulfill rationale depositor's demands. Furthermore, as the liquidity demand exceeds from Islamic banks reserves, it not only affects the liquidity but also erodes the goodwill of the Islamic bank and customer's belief on their bank. This situation could lead to loosing valuable customer accounts.

The findings clearly indicate that due to presence of rationale depositors Islamic banks are having problem in investing in potentially profitable projects. The rationale depositor can ask any time for his deposits and at that time does not want to wait for funds to be made available. As a consequence Islamic banks tend to keep more reserves as compare to conventional banks. This results in the loss of



opportunity in investing in potentially favorable long-term projects. Analysis also demonstrates that, to manage the market pressure, increasing the adequacy level of rules and regulations for liquidity risk management in Islamic banking is important. Analysis also revealed that, improving the adequacy level of rules and regulations for managing the liquidity risk will be helpful for Islamic banks, to invest in the available opportunities.

According to analysis, rationale depositors are affecting the liquidity risk management in Islamic banks. Although, State bank of Pakistan has provided rules and regulations for liquidity risk management in the Islamic banks, yet the current practices in Islamic banks are not adequate for managing the rationale depositor's effect on liquidity risk. State bank of Pakistan is responsible to make the rules and regulations for liquidity risk management for the banking industry. However Islamic banks in Pakistan have to communicate with depositor to realize the anticipated demand for liquidity. For this reason Islamic banks are also doing the calculation and analyses of liquidity pattern on regular basis.

Islamic banks have the adequate level of rules and regulations to manage the liquidity risk in Islamic banks, however due to improper implementation of the practices, it is difficult to manage the rationale depositors accordingly. So, Islamic banks are suggested to implement the rules and regulations effectively. It will help them to manage the demands from depositors. Due to poor liquidity risk management Islamic bank are not able to invest in the profitable projects. Unexpected demands from rationale depositors prevent them from availing the investment opportunities. Islamic banks need to consider the liquidity risk management as an essential factor for their growth. Islamic banks are getting more distressed due to rationale depositors than commercial banks. Islamic banks required to consider the rationale depositor as an integral part of liquidity risk management, while developing the strategies for liquidity risk management in Islamic banking. Furthermore, to improve the liquidity risk management Islamic banks need to provide their employees with regular training. Training will help bankers to understand the importance of liquidity risk management. They will learn new techniques to perform their duties. It will increase performance of their work, which ultimately help to control the liquidity risk management in Islamic banks.

State bank of Pakistan is responsible to address the problems arises in banking industry in the country. State Bank of Pakistan need to improve the rules, regarding the incentives provided for liquidity risk management in Islamic banks. The reserves affect the circulation of liquidity which leads to liquidity risk in Islamic banks. In such situation, State bank of Pakistan need to come forward and help Islamic banks by providing them sincere support. Holding large amount of cash in reserves also affects bank's ability to utilize this cash for paying debts and poor working capital management. Central bank can consider establishing a separate fund system only for fulfilling the urgent requirements of liquidity of Islamic banks. Finally, the recommended policies are constructed with the expected growth in the Islamic banking industry in Pakistan. It is assumed that the growth of the industry will be improved and the number of depositors will also be increased. So, the recommendations should be viewed as basis for improvement in the liquidity risk management and future areas of development should not bring major change in policies but instead fortify and go together with them.



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Appendix

	Ν	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	riance Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
AGE	100	1.00	2.00	3.00	2.2100	.40936	.168	1.446	.241
GENDER	100	1.00	1.00	2.00	N/A	N/A	N/A	N/A	N/A
EXPERIENCE	100	2.00	1.00	3.00	1.8600	.61987	.384	.097	.241
DEGREE	100	1.00	1.00	2.00	1.6700	.47258	.223	734	.241
ISLAMIC BANK EXPERIENCE	100	5.00	1.00	6.00	1.7100	.93523	.875	2.127	.241
LIQUIDITY RISK MANAGEMENT TRAINING	100	5.00	1.00	6.00	4.0800	1.81842	3.307	172	.241
LIQUIDITY RISK MANAGEMENT EXPERIENCE	100	2.00	1.00	3.00	1.6400	.65935	.435	.545	.241
LIQUIDITY RISK MANAGEMENT SATISFACTION	100	2.00	1.00	3.00	1.8900	.5140	.261	183	.241
INCENTIVES	100	2.00	1.00	3.00	1.9500	.51981	.270	072	.241
IMPORTANCE to LRD	100	3.00	1.00	4.00	1.9800	.65103	.424	.468	.241
SUFFICIENCY	100	3.00	1.00	4.00	2.1200	.55560	.309	.410	.241
ACCURACY	100	2.00	1.00	3.00	N/A	5511	303	- 12	241
RELY ON STATE BANK OF PAKISTAN	100	2.00	1.00	3.00	N/A	.55450	.307	1.392	.241
SATISFACTION WITH STATE BANK OF PAKISTAN	100	2.00	1.00	3.00	2.1300	.52522	.276	.151	.241
CASH RESERVES	100	3.00	1.00	4.00	2.200	.58569	.343	.614	.241
COMMUNICATE	100	3.00	1.00	4.00	2.2500	.51981	.270	.688	.241
PATTERN	100	3.00	1.00	4.00	2.2000	.6032	.364	.733	.241
EXCEEDS RESERVE	100	2.00	1.00	3.00	2.2000	.44947	.22	.817	.241
CAMELS	100	3.00	1.00	4.00	N/A	.58396	.341	2.294	.241
RATIONALE DEPOSITOR	100	3.00	1.00	4.00	1.5700	.83188	.692	1.62	.241
NPL	100	3.00	1.00	4.00	1.3300	.6244	.385	2.230	.241
SHORT TERM DEPOSIT	100	3.00	1.00	4.00	1.5700	.87911	.773	1.330	.241
PROJECTS	100	3.00	1.00	4.00	1.5100	.75872	.576	1.240	.241
ALTERNATE INVESTMENT OP	100	4.00	1.00	5.00	2.2100	.72884	.531	1.729	.241
MARKET PRESSURE	100	3.00	1.00	4.00	1.6000	.82878	.687	1.195	.241
SECURITIES SELLING	100	2.00	1.00	3.00	N/A	N/A	N/A	N/A	N/A
SECURITY SALE PREFER	100	1.00	1.00	2.00	1.5900	.49431	.244	372	.241
CURRENT LIQUIDITY RISK MANAGEMENT	100	2.0	1.0	3.0	1.960	.8155	.665	.074	.241
BANK RESILIENCE Valid N (list wise)	100 100	2.00	1.00	3.00	N/A	.80723	.652	129	.241

TABLE: DESCRIPTIVE STATISTICS

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