The Role of Management Ability, Political Influence and Financial Pressure in the Assets and Liability Management of Iranian Banks

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Abstract

This study aims to assess how management ability, political influence, and financial pressure affect Iranian banks' assets and liability management. To do this, the information of 11 active banks on the Tehran Stock Exchange is analyzed during 2009-2017. Three indices of liability to capital ratio, deposit to total assets ratio, and loans to total assets ratio are used for assessing the assets and liability management of banks. The results show that, first, management ability contributes to the liability to assets ratio. However, there is no significant relationship between management ability and deposit to assets ratio and loan to assets ratio. Second, political influence is inversely associated with the liability to capital ratio. This paper is the first study to assess such a topic in an emerging market. Thus, the results can provide useful insights for the financial analysts, shareholders, investors, government, and directors of banks in neighborhood countries.

Keywords: Management ability, Political influence, Financial pressure, Assets and liability management, Liability to capital ratio, Deposit to total assets ratio, Loans to total assets ratio.

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1. Introduction

The development of international dependencies from many sociopolitical aspects, especially in the economy of globalization, has caused the required motivations for integrating banking and financial systems to be of great importance. Following that, the significance of the global topics of accounting and bank management and understanding them is necessary. In this regard, frequent control and assessment of key items of balance sheet and the evaluation of significant issues in the balance sheet, including liquidity, the ability to pay back the debts, financial flexibility, as well as density, diversity, scheduling, and quality of assets and debts are of great significance. Banks are connected with different kinds of monetary and financial markets through different investors and borrowers. They are frequently entangled with a variety of risks, such that they may decide to enter a market or withdraw from that, increase or decrease one or several kinds of risks. Up to 1970, most of the bank activities include credit payments. In other words, that was mediation between small and low-cost deposits and providing loans. Pricings and investments were based on simple decisions, and the most important management challenge has been quality control of assets, loan losses, and additional costs. The emergence of inflation and economic recession problems and instability of interest rates at the end of the 1970s and early 1980s have caused banks' management of assets and debts to gain importance for keeping receivable profit margin (Greuning and Bratanovic, 2000). Assets and liability management includes technical tools and methods that guarantee value creation for shareholders and risk control. Today, the increasing growth of change in banking trends from extending balance sheet items to concentration on capital return rates and risk control has caused the assets and liability management knowledge for managers of banks to become an urgency for responding earnings outcomes.

Currently, accounting is in search of methods, policies, perspectives, and standards to realize, measure, classify, compare, purify, and control the actual and potential financial events, values, activities, and transactions to be able to provide useful and effective financial reports for users and managers' responding. The Bank monitoring committee in Bank for International Settlement, referred to as Wing Committee, believes that liquidity is of great importance in banks and lacks that brings about extensive consequences. Thus, the committee carried out large-scale studies to reach a series of basic liquidity management policies and principles. After releasing a report in September 1992 entitled, "a framework for measurement and liquidity management", by making the required modifications and changes and by considering the general and basic principles in liquidity management of banks in February 2000, a journal published under the name of "effective methods of liquidity management of banks" from the committee's side, which is comprised of 14 key principles about managing bank liquidity in 94 paragraphs. On the other hand, the performance of firms during financial crises is not merely describable using economic growth and stability in gaining profit, and some other effective factors are involved in the process. During economic flourishment, considerable problems of firms resulted in the formation of different strategies, diverse investment opportunities, and even different managerial policies and the effect of financial crises, recession periods, and economic flourishment on firm performance is traceable in the form of the following factors: First, during financial crises when the chance of occurrence of an unexpected decline in stock market price is high, the risk of occurrence of lawsuits is higher, so economic growth decline would lead to lawsuits. One of the ways to lower lawsuits is conservative reporting and presenting the best performance, such that managers are not prosecuted due to opportunistic behaviors and use of earnings management (Watts, 1993). Second, the demand for stabilizing the performance is higher during financial crises due to existing

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investment uncertainties. Since the probability of gaining negative outputs is higher during the recession, the investors ask for performance stability and no such excessive declines during recession periods. The inclination of investors and ownership during flourishment; however, under the influence of investment uncertainties is inverse. They ask for performances with ascending incline to gain maximum value from the provided opportunity. Third, banks always demand internal financial supply, not external ones, and in times of external financial supply, they attempt to absorb more investors' resources (Myers, 1984). During financial crises, concerning the decline of bank profitability, the deposit rates will also go down, and deposit resources will be withdrawn from banks. On the other hand, a recession occurs along with inflation in undeveloped countries, and the inflationary recession is another obstacle for banks' directing resources. Hence, financial crises result in the outflow of depositors' deposits both via declining the ability to pay interest and creating inflationary recession and cause the supply of bank resources to be faced with serious problems. Given the related theoretical literature to the effectiveness of different factors in performance aspects of banks, we should declare that special situation of the banking industry in Iran and the effects of different factors, like dependency on the government, existing political risks, macroeconomic status, as well as the relations of the Iranian economic system with the external world (especially due to economic sanctions) have caused different dimensions of bank performance to be influenced by these indices, to the point that in addition to profitability condition and ability to gain income, the assets and liability management of banks, to a great extent, is affected by the abovesaid conditions. Hence, by analyzing significant navigation aspects of bank management, we can assess these aspects' impact on different performance characteristics to elucidate the fluctuations of banking conditions finally. Therefore, the present study's major problem is formulated as follows: Do management ability, political influence, and financial pressure contribute to assets and liability management of banks?

On the other hand, by investigating the topic literature, we observe that no study carried out so far to assess the determining factors to assets and liability management of banks in the banking industry of the emerging markets and the impact of management ability, political relations, and financial crises on this topic is not studied. So, this paper has innovation from three aspects. First, it is about the impact of management ability on assets and liability management of banks. Second, it analyzes the impact of political influence on assets and liability management of banks; and third, it considers the effect of financial pressure on improving assets and liability management of listed banks on the Tehran Stock Exchange, so the contribution of this paper for knowledge increase and innovation can be listed as follows:

1) This paper presents a model for describing the reason for changes in assets and liability management of active banks in the Tehran Stock Exchange, which is not studied in the country so far;

2) Innovation in the used indices: the proxy for measuring management ability is the use of a data envelopment method based on inputs and outputs related to management performance in the banking industry.

3) Using an innovative synthetic method, we mean data envelopment method, panel data method, and bank data use until the end of 2017.

Hence, given the significance and necessity of exact evaluation of capital cost for banks and also the importance and urgency of performance improvement in this basic firm in the economy, the realization of contributing factors to assets and liability management is of great importance for managers, investors, and creditors, as well as the government. Finally, the present study aims to assess the impact of management ability, political risk, and financial crises on banks' assets and liability management. In the

following, we initially express the theoretical principles related to variables, assess the relationship between the dependent and independent variables, and finally discuss the methodology, data analysis, discussion, and conclusion in the upcoming sections.

2. Background and Hypothesis Development

Banks, like other economic firms, seek to maximize the profitability and interests of their beneficiaries. In other words, given the increasing pressure in the competitive market and limitation of resources, banks attempt to maximize their incomes and minimize the costs to the extent possible. The source of bank income is mainly facilities and investments categorized under the balance sheet title. The source of costs is mainly bank deposit resources that are categorized under the title of liabilities. However, the goal of maximizing the profit is always under the influence of different risks the banks are dealing with. These risks affect banks' profitability by affecting the cost and bank income and even jeopardize banks' existence. The major activities of financial intermediaries, including banks, is to absorb deposits and credit facilities. In other words, financial intermediaries, like banks, have dual activities in the monetary market. On the one hand, they demand investors' monetary resources and, on the other hand, supply monetary resources to investors and gain profit via this system. Banks seek a strategy to make maximum profit with minimum risk possible. In the first step to implementing the model, by considering two threshold modes of maximizing profit and minimizing risk, the optimum strategy should be determined for an optimum combination of resources-facilities. The strategy has given weight to the amount of significance of resource and facilities components based on their impact on maximum profitability and minimizing bank risk (Vaidyanathan, 1999).

By casting an integrated and synchronized look to bank assets and liabilities, their combination and contributing factors, including risk, integrated assets, and liability management, is a systematized managerial approach that puts into effect the predetermined goals profitability or risk decrease. In other words, assets and liability management comprises a set of specialized tools and methods that take the value creation for shareholders and risk control into consideration (Biety, 2012).

The international economic system indicates a close relationship between the investment system and the level of advancement of countries (Guttman, 1994). This means that countries with an efficient pattern for allocating capital to different economic sections benefit from higher social welfare. This is obvious that directing national capitals as well as the savings of people toward economic activities is pursued via the banking system of that country. Commercial banks in each country collect resources and national capitals and allocate that to different economic sections pave the way for economic growth and development. Hence, banks' success in doing these procedures is of great importance (Brayan, 1993). Although collecting resources is important, efficient specialization of available resources to this goal is even much important. Regardless of the geographical region, banks can efficiently allocate their resources to customers only when they benefit from a valuable customer evaluation system. Hence, different countries use particular strategies to achieve their goals in this field. In Iran, regarding the Islamic banking system and load allocation in the form of Islamic contracts to true and legal customers, credit customer evaluation is of great importance. The system is important when it has appropriate criteria for evaluating customers before giving facilities, such that, by using this system, bank facilities are granted to favorable customers (Morsman, 1997). The importance of evaluating political influence on different aspects of bank performance can be sought in the following factors: first, a considerable proportion of active bank management in the capital market, either directly or indirectly, is under the influence of political management because the government

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and its agencies that impose their power through institutes and satellite firms to the government, have penetrated in most of the banks and are able to affect their internal operational processes as well as their working and accounting policies to be able to direct the performance and policies of banks. The issue is more observable in banks that a proportion of their stocks is transferred per article no. 44 of the constitution, the transfer of state-owned companies because these firms' management is actually under the government's influence. The bank policies are tried to remain in the government's possession. Second, political events contribute to the political relations, such that the managers of large banks (Saderat and Tejarat) under the influence of political events, despite not being managed by the government, embark on a type of political management and change their objectives, strategies, and performances in line with the political situations and this would lead to a change in current and operational policies of the firm and can finally contribute to the conflict of interest between managers and owners and even the conflict of interests between the government and owners and/or the conflict of interest between society and owners, so the presence of political relations can affect strategies, objectives, and management method of the active bank on the Tehran Stock Exchange. Financial crises are also a part of the existing reality in all countries' economies, critical for a country like Iran, under different factors regarding its political challenges. The imposed sanctions from America and the European Union's side, which mainly targeted the Iranian banks, were among the key reasons for creating financial and economic crises within the past decade. These sanctions and the subsequent crises affect directly in the first stage the performance of banks and profitability. Given that and according to the significance of created financial crises resulting from frequent foreign sanctions on the economy, especially on the banking industry, this effect should be evaluated within a study to incorporate the effects of such financial crises in planning. So far, the conducted studies in this field are as follows: Lina and Petraitytė (2014) declare that the manner of assets and liability management of Latvian Banks is under the commercial cycle's influence. They also indicate that banks demand to take more risks and, at the same time, embark on assets and liability management. On the other hand, the commercial cycle of a bank is different from the economic cycle. It is based on banks' commercial cycle that level of assets and liability will be specified in Latvian banks and finally contribute to their profitability. Chen (2009) argues that banks can increase their efficiency by decreasing 20-30% of their costs. Moreover, private international banks, compared with local private banks and state-owned commercial banks, are more efficient. Among the factors that affect banks' level of efficiency, we can refer to the persistence and stability of macroeconomy, degree of market competition, political stability, and financial development depth. Regarding what is said, research hypotheses are as follows:

H1: The effect of management ability on assets and liability management of banks is significant.

H2: The effect of political influence on assets and liability management of banks is significant.

H3: The effect of financial pressure on assets and liability management of banks is significant.

3. Research Methodology

The statistical population of the study includes all active firms on the Tehran Stock Exchange. This study's sampling method is purposeful sampling, where the scholar applies his judgment to the sample based on previous information from society and/or regarding certain objectives. In this method, sampling is not based on easiness, but the scholar's judgment is based on his previous information and the objective he follows

based on the project's passive aspects. Hence, in this paper, the sample under study given the scholar's objectives are listed banks on the Tehran Stock Exchange active in the banking industry and are transacted within the study period. These banks are listed in the following table:

Table 1. Statistical sample

No.	Bank name	No.	Bank name	No.	Bank name	No.	Bank name
1	Eghtesad Novin	4	Tejarat	7	Saderat Iran	10	Kar Afarin
2	Parsian	5	Sarmayeh	8	Ghavamin	11	Post
3	Pasargad	6	Sina	9	Mellat		

The primary and raw information and data for hypothesis testing were collected using the information bank of Tehran Stock Exchange, including Tadbir Pardaz and Rah Avard-e Novin and also the published reports of Tehran Stock Exchange via direct access (by analyzing the released reports in Codal Website and manually collected data) to CDs and also by referring to rdis.ir website and other necessary resources. The data analysis method is cross-sectional and year-by-year (panel data). In this paper, the multivariate linear regression model is used for hypothesis testing. Descriptive and inferential statistical methods are used for analyzing the obtained data. Hence, the frequency distribution table is used for describing data, and at the inferential level, the F-Limer, Hausman test, test of normality, and multivariate linear regression model are used for hypothesis testing.

3.1.   Models used for hypothesis testing

The main regression model for evaluating the hypotheses are as follows:

Model (1):

$$\text{LEV}_{it} = \beta + \beta_1 \text{MA}_{it} + \beta_2 \text{POLITIC1}_{it} + \beta_3 \text{POLITIC2}_{it} + \beta_4 \text{CRISIS1}_{it} + \beta_5 \text{CRISIS2}_{it} + \beta_6 \text{CAP}_{it} + \beta_7 \text{LEVARAGE}_{it} + \beta_8 \text{PPE}_{it} + \beta_9 \text{AGE}_{it} + \beta_{10} \text{SIZE}_{it} + \varepsilon$$

Model (2):

$$\text{Deposits}_{it} = \beta + \beta_1 \text{MA}_{it} + \beta_2 \text{POLITIC1}_{it} + \beta_3 \text{POLITIC2}_{it} + \beta_4 \text{CRISIS1}_{it} + \beta_5 \text{CRISIS2}_{it} + \beta_6 \text{CAP}_{it} + \beta_7 \text{LEVARAGE}_{it} + \beta_8 \text{PPE}_{it} + \beta_9 \text{AGE}_{it} + \beta_{10} \text{SIZE}_{it} + \varepsilon$$

Model (3):

$$\text{loans}_{it} = \beta + \beta_1 \text{MA}_{it} + \beta_2 \text{POLITIC1}_{it} + \beta_3 \text{POLITIC2}_{it} + \beta_4 \text{CRISIS1}_{it} + \beta_5 \text{CRISIS2}_{it} + +\beta_6 \text{CAP}_{it} + \beta_7 \text{LEVARAGE}_{it} + \beta_8 \text{PPE}_{it} + \beta_9 \text{AGE}_{it} + \beta_{10} \text{SIZE}_{it} + \varepsilon$$

Where

Lev: assets and liability management – capital to liability ratio, Deposits: assets and liability management – deposit to total assets, Loans: assets and liability management – loans to total assets, MA: management ability, POLITIC1: political relations – political management, POLITIC2: political relations- governmental influence, CRISIS1: financial crisis – economic recession and flourishment, CRISIS2: financial crisis – financial pressure, CAP: capital sufficiency, LEVERAGE: financial leverage, PPE: fixed assets, AGE: bank age, and SIZE: bank size

3.2. Defining the variables of the study

Management ability (MA): In this paper, according to García-Meca and García-Sánchez (2018), a two-step process is used for evaluating management ability and bank efficiency based on the data envelopment method. Initially, the bank efficiency score is determined via data envelopment analysis based on input and outputs. Data

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envelopment is a linear planning method based on each bank's banks' and performance levels' effective line methodology. It assigns an amount of efficiency in a score, between 0 and 1, to each bank. Each bank's efficiency is computed based on each bank's input and output and the effective line of all banks. Hence, we initially assess the bank's efficiency using the data envelopment method. The calculated efficiency enters the main management ability evaluation model as a dependent variable, and the management ability will be estimated. The pattern used for determining efficiency via data envelopment is as follows:

Table 2. Research variables for analyzing management ability

Input variables	Output variables
Total tangible assets	Total bank deposit
Net profit	Total granted bank facilities
General and office costs	Total investments
Financial costs	Total incomes
Rental costs	

Hence, in the above input and output pattern, the proportion of outputs to inputs is indicative of a pattern headed to decision improvement units as follows:

$$MAX\theta = \frac{u1Deposit + u2Loans + u3Investment + u4IntInco}{v1PPE + v2Int + v3Labor + v4IntExp + v5RentaiExp}$$

Where

Deposits: is total bank deposits at the end of the fiscal year

Loans: total granted facilities

Investment: investment

Intinco: total firm incomes

PPE: fixed assets

Int: net profit of the bank

Labor: general and office costs

Intexp: total financial costs

Rentalexp: related rental costs

Where

The index of management efficiency based on the above inputs and outputs is a number between 0 and 1, which indicates complete management efficiency, and 0 indicates management inefficiency.

After performing the first stage and estimating the score of data envelopment for each bank, the following regression model will be fitted for all bank-year:

$$DEAScore_{it} = \beta_0 + \beta_1 size_{it} + \beta_2 Market - Share_{it} + \beta_3 Cash - Flow_{it} + \beta_4 age_{it} + \beta_5 BR_{it} + \gamma Country + Year + \varepsilon$$

Where

DEAScore: is the score of bank i efficiency in the year t

SIZE: The size of bank i in the year t

Market-Share: is the market share of bank i in the year t from total deposits of the banking industry

Cash-Flow: is cash flow derived from operational activities of bank i in the year t

Age: age of bank i in the year t

BR: board independence of bank i in the year t

ε: residual items of the model, which are management ability evaluation index in this paper

Financial crisis; economic recession and boom periods (crisis1):

Financial crisis periods (crisis1) fluctuate in economic activity and usually national

production and per capita national production, which is finally shown by the economic growth rate. Each commercial period includes enhancement, boom, depression, and recession periods. In this paper, the business cycle, a virtual variable with two modes, includes economic recession and boom period 0 in economic boom mode and 1 in economic recession mode. First, the mean economic growth rate of the study period, that is, 2009-2017, is computed and depicted in the following table:

Table 3. Economic growth rate – Central Bank of Iran

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	Mean
Rate	3.16	6.36	3.2	-5.4	-1.9	0.3	0.9	7.2	4.6	2.05

Estimated by Majlis Research Center given the growth rate of the first 9 months of 2017

Then, given the calculated mean of years with an economic growth rate of higher than mean, the period is not critical economically, and years with an economic growth rate of less than mean are critical economically, so years 2009, 2010, 2011, 2016, and 2017 with an economic growth rate of higher than mean (2.05) are economically noncritical period and years 2012, 2013, 2014, and 2015 with a growth rate of lower than mean (2.05) are the economically critical period, so to test the proposed hypotheses, the variable of economic crisis is a virtual variable between 0 and 1. Such that for years with economic crisis 1 and years with no economic crisis, 0 are assigned. The operational definition of other variables of the study are as follows:

Table 4. The operational definition of variables

Variable name	Type of variable	Sing	Definition
Management ability	Independent	*MA*	Calculated based on the defined pattern using the data envelopment method
Political relations-political management	Independent	*POLITIC1*	Virtual variable: such that if there is a government representative among the board members 1, otherwise, 0 will be assigned
Political relations-government influence	Independent	*POLITIC2*	The percentage of shares available to the government directly or indirectly
Financial crisis – economic recession and the boom period	Independent	*CRISIS1*	Virtual variable: such that if there is an economic crisis within the period of study 1, otherwise, 0 will be assigned
Financial crisis – financial pressure	Independent	*CRISIS2*	Altman's criterion is used for measuring financial pressure. The criterion is computed in this paper via the following equation: $$EM\,Score = 6.56*X1 + 3.26*X2 + 6.72*X3 + 1.05*X4 + 3.25$$ X1 is the working capital to total assets ratio. X2 is accumulated profit to total assets ratio, X3 is profit before interest and tax to total assets, and X4 is book value to total liabilities. Banks with Altman's criterion of smaller than 1.1 (banks with financial pressure) are known as banks with financial pressure, and banks with Altman's criterion of higher than 1.1 (healthy bank) are known as the bank with no financial pressure.
Age	Control	*AGE*	No. of years the bank is established
Size	Control	*SIZE*	Natural logarithm of total bank assets
Capital sufficiency	Control	*CAP*	Recorded capital of the bank to total assets
Financial leverage	Control	*LEVERAGE*	Total liability to total assets ratio
Fixed assets	Control	*PPE*	Fixed tangible assets to total assets

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4. Data analysis

4.1. Descriptive statistics

The descriptive statistics of research variables are presented in the following table:

Table 5. Descriptive statistics of research variables in sample firms

Variable	Obs	Mean	Median	Max.	Min.	Std. dev.	Skewness	Kurtosis
AGE	99	3.073	2.995	4.276	1.791	0.584	0.358	2.523
CAP	99	0.043	0.036	0.128	0.006	0.023	0.126	4.662
CRISIS1	99	0.444	0.000	1.000	0.000	0.499	0.223	1.050
CRISIS2	99	1.636	1.190	5.847	-0.689	1.343	0.415	4.539
DEPOSITS	99	18.717	19.068	20.92	14.79	1.492	-0.720	2.725
LEV	99	18.305	18.878	94.01	-79.64	18.03	-0.109	3.280
LEVERAGE	99	0.930	0.940	1.012	0.814	0.041	-0.863	3.216
LOANS	99	19.01	19.253	21.03	16.18	1.164	-0.451	2.483
MA	99	0.114	0.117	0.232	0.011	0.053	0.019	2.443
POLIT1	99	0.323	0.000	1.000	0.000	0.470	0.755	1.571
POLIT2	99	18.756	0.000	81.01	0.000	27.34	1.278	3.214
SIZE	99	19.368	19.495	21.52	16.44	1.182	-0.377	2.493

Since the panel data method is used for hypothesis testing, the number of year-company observations based on balanced combined data has been 99 year-company (9 years and 11 firms).

4.2. Analyzing hypotheses

For analyzing hypotheses and the effect of management ability, political influence, and financial pressure on assets and liability management of banks, the proposed models are used that will be analyzed based on regression models of hypotheses:

4.3. Analyzing hypotheses using the first model

For analyzing the effect of management ability, political influence, and financial pressure on assets and liability management – liability to capital ratio, model no. 1 is used, the results of which are as follows:

In the model, the F probability value (or p-value) is 0.00. since this value is lower than 0.05, the null hypothesis is rejected at a 95% confidence level, so there is a significance in the model and a linear relationship between independent and dependent variables.

H1 analysis:

In this model, the regression test results show that the MA variable's coefficient is a positive the model. By increasing management ability, the value of the variable of assets and liability management – liability to bank capital ratio also increases, and vice versa. Such a relationship is significant statistically at a 95% confidence level because the obtained t value is more than its corresponding value in the table ($t0.975=\alpha =196$). The calculated p-value in this variable is less than 5%.

H2 analysis:

Moreover, the coefficient of the variable of POLITIC1 is negative in the model, which means by increasing political relations – political management, the value of the variable of assets and liability management – liability to bank capital ratio also increases and vice versa. Such a relationship is significant statistically at a 95% confidence level because the obtained t value is more than its corresponding value in the table ($t0.975=\alpha =196$). The calculated p-value in this variable is less than 5%.

The coefficient of the variable of POLITIC2 is positive in the model, which means by increasing political relations – government influence, the value of the variable of

assets and liability management – liability to bank capital ratio also increases and vice versa. Such a relationship is significant statistically at a 95% confidence level because the obtained t value is more than its corresponding value in the table (t0.975=α =196). The calculated p-value in this variable is less than 5%.

Table 6. The results of hypothesis testing based on model 1

Model	$LEV_{it} = \beta + \beta_1 MA_{it} + \beta_2 POLITIC1_{it} + \beta_3 POLITIC2_{it} + \beta_4 CRISIS1_{it} + \beta_5 CRISIS2_{it} + \beta_6 CAP_{it} + \beta_7 LEVARAGE_{it} + \beta_8 PPE_{it} + \beta_9 AGE_{it} + \beta_{10} SIZE_{it} + \varepsilon$			
Variables	**Coefficients**	**t statistic**	**P-value**	**Result**
Constant	-202.5550	-12.21535	0.0000*	Significant in the model at 95% level
MA	9.969212	2.026151	0.0462*	Significant in the model at 95% level
$POLITIC1$	-3.140682	-2.050481	0.0437*	Significant in the model at 95% level
$POLITIC2$	0.254945	2.665006	0.0094*	Significant in the model at 95% level
$CRISIS1$	-2.468741	-4.007914	0.0001*	Significant in the model at 95% level
$CRISIS2$	0.934464	4.589329	0.0000*	Significant in the model at 95% level
CAP	36.26163	1.686262	0.0957	No significance in the model
$LEVARAGE$	138.5380	8.522547	0.0000*	Significant in the model at 95% level
PPE	-0.890911	-1.913899	0.0593	No significance in the model
AGE	-7.913587	-1.897831	0.0614	No significance in the model
$SIZE$	6.309518	4.825994	0.0000*	Significant in the model at 95% level
F test values		67.754	Durbin-Watson test	1.500502
P-value		0.000000*	R^2	0.945572
Jarque -Bera test		0.592	adjusted R^2	0.931616
P-value of Jarque-Bera test		0.744		

H3 analysis:

the coefficient of the variable of CRISIS1 is negative in the model, which means by increasing financial crisis– economic recession and boom periods, the value of the variable of assets and liability management – liability to bank capital ratio also decreases and vice versa. Such a relationship is significant statistically at a 95% confidence level because the obtained t value is more than its corresponding value in the table (t0.975=α =196). The calculated p-value in this variable is less than 5%.

The coefficient of the variable of CRISIS2 is positive in the model, which means by increasing financial crisis – financial pressure, the value of the variable of assets and liability management – liability to bank capital ratio also increases and vice versa. Such a relationship is significant statistically at a 95% confidence level because the obtained t value is more than its corresponding value in the table (t0.975=α =196). The calculated p-value in this variable is less than 5%.

The coefficient of determination in the model is approximately 94.55%. This coefficient shows that independent variables in the model can justify more than 94% of changes in assets and liability management – liability to bank capital ratio. One of the sufficiency tests of the model is assessing the absence of autocorrelation among model residuals. Autocorrelation causes the t values in the model to be excessively large. Consequently, the coefficients to be significant, wrongly, lead to the false interpretation of the coefficients and the probability of occurrence of error type 2. Durbin-Watson test values are used in order to assess the presence of autocorrelation, which should be between 1.5 and 2.5. In this model, the Durbin-Watson statistic value is equal to 1.50, and values close to 2 indicate the absence of autocorrelation among model residuals. One of the other model sufficiency methods is to assess the normality of regression model errors. According to this hypothesis, regression equation errors should have a normal distribution. The following diagram displays the normality of error values in the model. Since the p-values corresponding to the Jarque-Bera statistic for model residual values (0.74) are more than 5%, the error normality (model residuals) of the model is accepted.

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4.4. Analyzing hypotheses using the second model

For analyzing the effect of management ability, political influence, and financial pressure on assets and liability management – deposit to total assets ratio, model no. 2 is used, the results of which are as follows:

Table 7. The results of hypothesis testing based on model 2

Model	$Deposits_{it} = \beta + \beta_1 MA_{it} + \beta_2 POLITIC1_{it} + \beta_3 POLITIC2_{it} + \beta_4 CRISIS1_{it} + \beta_5 CRISIS2_{it} + \beta_6 CAP_{it} + \beta_7 LEVARAGE_{it} + \beta_8 PPE_{it} + \beta_9 AGE_{it} + \beta_{10} SIZE_{it} + \varepsilon$		
Variables	**Coefficients**	**t statistic**	**P-value**	**Result**
Constant	8.936018	5.104366	0.0000*	Significant in model at 95% level
MA	0.086067	0.165686	0.8688	No significance in the model
$POLITIC1$	0.204699	1.265848	0.2093	No significance in the model
$POLITIC2$	-0.029161	-2.887248	0.0050*	Significant in model at 95% level
$CRISIS1$	0.117833	1.811940	0.0738	No significance in the model
$CRISIS2$	-0.065220	-3.033922	0.0033*	Significant in model at 95% level
CAP	-5.665080	-2.495278	0.0147*	Significant in model at 95% level
$LEVARAGE$	-2.321615	-1.352775	0.1800	No significance in the model
PPE	-0.052157	-1.061281	0.2918	No significance in the model
AGE	1.253605	2.847604	0.0056*	Significant in model at 95% level
$SIZE$	0.511967	3.709091	0.0004*	Significant in model at 95% level
F test values		111.978	Durbin-Watson test	2.091242
P-value		0.000000*	R^2	0.966344
Jarque -Bera test		0.804	adjusted R^2	0.957714
P-value of Jarque-Bera test		0.669		

In the model, the F probability value (or p-value) is 0.00. since this value is lower than 0.05, the null hypothesis is rejected at a 95% confidence level, so there is a significance in the model and a linear relationship between independent and dependent variables.

H1 analysis:

In this model, the regression test results show that the MA variable's coefficient is a positive in model. By increasing management ability, the value of the variable of total bank deposits also increases, and vice versa. Such a relationship, however, is that much weak statistically that it is not significant at 95% confidence level because, first, the obtained t value is less than its corresponding value in the table (t$_{=٠.٩٧٥α}$ =196) and also the calculated p-value in this variable is more than 5%.

H2 analysis:

Moreover, the coefficient of the variable of POLITIC1 is positive in the model, which means by increasing political relations – political management, the value of the variable of total bank deposits also increases and vice versa. Such a relationship, however, is that much weak statistically that it is not significant at 95% confidence level because, first, the obtained t value is less than its corresponding value in the table (t$_{=٠.٩٧٥α}$ =196) and also the calculated p-value in this variable is more than 5%.

The coefficient of the variable of POLITIC2 is negative in the model, which means by increasing political relations – government influence, the value of the variable of total bank deposits decreases, and vice versa. Such a relationship is significant statistically at a 95% confidence level because the obtained t value is more than its corresponding value in the table (t0.975=α =196). The calculated p-value in this variable is less than 5%.

H3 analysis:

The coefficient of the variable of CRISIS1 is positive in the model. By increasing financial crisis– economic recession and boom periods, the value of the variable of total bank deposits also increases and vice versa. Such a relationship, however, is that much weak statistically that it is not significant at 95% confidence level because, first, the

obtained t value is less than its corresponding value in the table ($t_{=,\text{۹۷۵}\alpha}$ =196) and also the calculated p-value in this variable is more than 5%.

The coefficient of the variable of CRISIS2 is negative in the model, which means by increasing financial crisis – financial pressure, the value of the variable of total bank deposits decreases, and vice versa. Such a relationship is significant statistically at a 95% confidence level because the obtained t value is more than its corresponding value in the table ($t0.975=\alpha$ =196). The calculated p-value in this variable is less than 5%.

The coefficient of determination in the model is approximately 96.66%. This coefficient shows that independent variables in the model can justify more than 94% of changes in the variable of total bank deposits. In this model, the Durbin-Watson statistic value is equal to 2.09, and values close to 2 indicate the absence of autocorrelation among model residuals. Since the p-values corresponding to the Jarque-Bera statistic for model residual values (0.66) are more than 5%, the error normality (model residuals) of the model is accepted.

4.5. Analyzing hypotheses using the third model

For analyzing the effect of management ability, political influence, and financial pressure on assets and liability management – loan to total assets ratio, model No. 3 is used, the results of which are as follows:

Table 8. The results of hypothesis testing based on model 3

Model	$loans_{it} = \beta + \beta_1 MA_{it} + \beta_2 POLITIC1_{it} + \beta_3 POLITIC2_{it} + \beta_4 CRISIS1_{it}$ $+ \beta_5 CRISIS2_{it} + \beta_6 CAP_{it} + \beta_7 LEVARAGE_{it} + \beta_8 PPE_{it} + \beta_9 AGE_{it}$ $+ \beta_{10} SIZE_{it} + \varepsilon$			
Variables	**Coefficients**	**t statistic**	**P-value**	**Result**
Constant	0.653297	1.040158	0.3011	No significance in the model
MA	-0.256883	-1.076076	0.2848	No significance in the model
$POLITIC1$	-0.016824	-0.310618	0.7568	No significance in the model
$POLITIC2$	0.000795	0.785425	0.4343	No significance in the model
$CRISIS1$	0.065610	2.372822	0.0198*	Significant in model at 95% level
$CRISIS2$	0.002266	0.211553	0.8329	No significance in the model
CAP	-1.381333	-1.345938	0.1818	No significance in the model
$LEVARAGE$	-1.253856	-2.006549	0.0479*	Significant in model at 95% level
PPE	-0.061152	-2.831359	0.0057*	Significant in model at 95% level
AGE	-0.122876	-2.796349	0.0063*	Significant in model at 95% level
$SIZE$	1.080337	42.18684	0.0000*	Significant in model at 95% level
F test values		842.021	Durbin-Watson test	1.693674
P-value		0.000000*	R^2	0.389657
Jarque -Bera test		0.875	adjusted R^2	0.388482
P-value of Jarque-Bera test	0.646			

In the model, the F probability value (or p-value) is 0.00. since this value is lower than 0.05, the null hypothesis is rejected at a 95% confidence level, so there is a significance in the model and a linear relationship between independent and dependent variables.

H1 analysis:

In this model, the regression test results show that the MA variable's coefficient is negative. By increasing management ability, the variable of total granted bank facilities' value decreases, and vice versa. Such a relationship, however, is that much weak statistically that it is not significant at 95% confidence level because, first, the obtained t value is less than its corresponding value in the table ($t_{-0.975}^{\alpha}$ =196) and also the calculated p-value in this variable is more than 5%.

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H2 analysis:

Moreover, the coefficient of the variable of POLITIC1 is negative in the model, which means by increasing political relations – political management, the value of the variable of total granted bank facilities decreases and vice versa. Such a relationship, however, is that much weak statistically that it is not significant at 95% confidence level because, first, the obtained t value is less than its corresponding value in the table ($t_{=۰,۹۷۵α}$ =196) and also the calculated p-value in this variable is more than 5%.

The coefficient of the variable of POLITIC2 is positive in the model, which means by increasing political relations – government influence, the value of the variable of total granted bank facilities also increases, and vice versa. Such a relationship is significant statistically at a 95% confidence level because the obtained t value is more than its corresponding value in the table (t0.975=α =196). The calculated p-value in this variable is less than 5%.

H3 analysis:

The coefficient of the variable of CRISIS1 is positive in the model. By increasing financial crisis– economic recession and boom periods, the value of the total granted bank facilities' value also increases, and vice versa. Such a relationship is significant statistically at a 95% confidence level because the obtained t value is more than its corresponding value in the table (t0.975=α =196). The calculated p-value in this variable is less than 5%.

The coefficient of the variable of CRISIS2 is positive in the model, which means by increasing financial crisis – financial pressure, the value of the variable of total granted bank facilities also increases, and vice versa. Such a relationship, however, is that much weak statistically that it is not significant at 95% confidence level because, first, the obtained t value is less than its corresponding value in the table ($t_{=۰,۹۷۵α}$ =196) and also the calculated p-value in this variable is more than 5%.

The coefficient of determination in the model is approximately 38.96%. This coefficient shows that independent variables in the model can justify more than 38% of changes in the variable of total granted bank facilities. In this model, the Durbin-Watson statistic value is equal to 1.69, and values close to 2 indicate the absence of autocorrelation among model residuals. Since the p-values corresponding to the Jarque-Bera statistic for model residual values (0.64) are more than 5%, the error normality (model residuals) of the model is accepted.

5. Conclusion

The obtained results from hypothesis analysis show that, first, management ability contributes to liability to capital ratio and assets and liability management. However, there is no significant statistical relationship between management ability and deposit to assets ratio and loan to assets ratio. Second, there is a significant inverse statistical relationship between political management and state-owned ownership and liability to capital ratio. Moreover, state-owned ownership would lead to a significant increase in the deposit to assets ratio. However, no relationship is evident between political management and deposit to assets ratio and between political management and state-owned ownership and loan to property ratio. Third, the relationship between economic periods and the financial pressure of banks is negative and positive. Statistically, the relationship between financial pressure and assets to deposit ratio is inverse and significant, and the relationship between economic periods and loan to assets ratio is positive and significant. However, there is no significant relationship between economic periods and deposit to assets ratio and banks' financial pressure and loan to assets.

The results obtained from the first hypothesis show that improving the level of ability and expertise in bank management can necessarily lead to the improvement of banks' assets and liability and increase the liability to capital ratio of banks. Such a result, in fact, indicates that enhancing management ability can increase the power of deposit absorption and enhance the proportion of supplied resources from deposits, compared with bank capital. This indicates policies adopted by the management that can direct a larger proportion of banking industry deposits toward banks under its management. Efficient management by decreasing credit risk, liquidity risk, and bankruptcy risk can actually cause the country's investors to invest a considerable proportion of their banks' resources, so the proportion of bank liability and capital will increase.

The results obtained from the second hypothesis show that political management and the presence of a board member in the banking structure have caused the decline of the liability to capital ratio. This occurred due to the inefficiency of state-owned management in the bank management structure. An increase in the number of governing board members in the board structure has caused the decline of deposit absorption ability and capital to liability ratio. Besides, the results show that state-owned ownership has increased the capital to liability ratio. This can indicate the use of state-owned facilities for banks with no such governmental ownership. In these banks, it is possible to absorb higher deposits and allocate a higher proportion of total banking industry deposit, which will increase liability to the capital ratio, which indicates strengthening the ability to absorb the deposit of banks with higher governmental ownership.

The third hypothesis results reveal that economic recession and financial pressure periods have an inverse and direct effects on liability to capital ratio, respectively. During the recession period, banks can absorb less deposit, decreasing liability to capital ratio because the amount of absorbed deposit is declined in the bank's liability structure. Moreover, banks with financial pressure usually suffer from extremely low capital sufficiency and the amount of their capital, given the volume of liabilities and assets, is trivial. Accordingly, banks with financial pressure have a high liability to capital ratio. On the other hand, banks with high financial pressure have more leverage and a higher liability ratio, leading to increased liability to capital ratio. Besides, the increase of financial pressure leads to the decline of the deposit to property ratio, which is also expectable. Banks with financial pressure can absorb fewer resources. Since they deal with high credit risks, the return of granted resources to the facility provision cycle will be prolonged, and consequently, the proportion of their deposits will be declined. Finally, the proportion of loans to total assets increases during economic recession periods, because on the one hand, there is a limitation in absorbing deposit, and on the other hand, during economic recession periods, one of the major policies of the government is to provide loan to move out of economic recession, so the amount of loans increases in proportion to total assets.

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