Identification of Cyclical Banks in Iranian Banking System (Focus on Leverage Ratio)

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Abstract

The cyclical banks have different behavior than other banks. The structure of the balance sheet in cyclical banks is different from anti-cyclical banks. The cyclical banks have a relationship between leverage growth and asset growth while the other banks have no relationship between asset growth and leverage growth in the banking system. This relationship depends on the structure of the balance sheet and explains how banks behave in the business environment. Banks decide based on economic conditions and their leverage introduces the structure of balance sheet and banking models. This research surveys the behavior of cyclical banks in the Iranian banking system during the period of 2005-2015. According to the results, the Positive relationship between asset growth and leverage growth approves cyclical behavior of leverage. The structure of the balance sheet and a variety of banks is more important to leverage behavior. This paper uses the type of banks and size as the main variable in the Iranian banking system.

The bank should be adjusting its balance sheets based on economic conditions and business. Banks that influence cyclical leverage behavior have a higher share of credits in balance sheets. A higher share of credits explains tending banks for short-term credits.

Keywords: Banking System, Cyclicality, Banking Regulation, Leverage.

JEL Classification: G21, G32, G28, C23.

1. Introduction

The importance of leverage is the operations of financial frictions. The measure of capital that relate to the leverage and debt can be important. Leverage can be an effect on the measure of net worth. The leverage relates to asset pricing and can be influenced by the size of

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balance sheets. In other words, leverage relates to the credit supply and lending in banking and their returns of banks will depend on sensitively on leverage positions.

The leverage ratio has been a major factor in the financial crisis. The more leverage ratio has created risk in financial markets. The leverage ratio has an effect on weaknesses and strengthens of risk in financial markets. Leverage can protect banks against unexpected losses and more risks. Leverage is more in the times that risk is low and leverage behavior differs in the good and bad times. The leverage behavior of banks depends on the cyclical and influence on the assets, return on equity, the structure of balance sheets and lending. Adrian and Shin (2010) confirm that investment bank leverage between 1997 and 2008 is pro cyclically because the leverage and asset growth have a positive relationship. On the other hand, the evidence displays that the market needs higher leverage and more return on equity. Attainment of the return via leverage disregards market discipline and management. This concept effect on the market decides on manager behavior and shareholders' incentives. Then, the pro-cyclical of leverage behavior is made in banking systems. Schularick and Tylor (2012) confirm that there is cyclical behavior bank credit using the data set 140 years across 14 developed countries. These results show that bank credit is a highly significant relationship in the financial crisis. The financial crisis impacts on the bank credit and these fluctuations adverse economic growth in developed economies.

This paper aims to determine the cause of pro-cyclical leverage behavior in order to surveying risk-taking capability. Then, this research is trying to indicate some variables that could influence leverage growth. The cause of the existence of pro-cyclical leverage behavior could be balance sheet components. Leveraging and deleveraging of banking related to booms and busts in an asset portfolio. There is some evidence that leverage behavior is connected to asset growth in the balance sheet. Furthermore, the relationship between leverage growth and asset growth is being investigated.

This paper provides empirical support of leverage cyclicality and tests the behavior of leverage cyclicality. This paper motivated Giordana and Schumacher (2012) that study the leverage cyclicality in banking systems. This paper design the model and estimate the related

equation by Dynamic panel to demonstrate that banks have cyclically leverage behavior in Iranian banking systems. This model is estimated by unbalanced panel data of annual data from 25 banks over the period of 2005-2015. The analysis survey the literature reviews about leverage in financial markets.

This paper is organized as follows. Section 2 describes the theoretical framework and section 3 provides data sets and models. Section 4 shows the estimations of models and section 5 explains the results of models. Finally, there are conclusions and suggestions.

2. Literature Review

The basic models of financial markets show that the pro-cyclicality of asset prices leads to financial cycles. During the economic fluctuations change assets prices and this concept shows the strengthening and weakness of balance sheets structure. Therefore, banks are lending in these circumstances. Among the first researcher to study this concept can be referring to Bernanke and Gartler (1989) and Kiyotaki and Moone (1997).

Adrian and Shin (2008) survey the relationship between lending and asset prices. Monetary policy can affect the ability of banks intermediation to use the leverage. This concept influences asset pricing. In addition, low macro-economic uncertainty may contribute to building up imbalances.

Adrian and Shin (2011a, 2009a) survey that the linkage of pro-cyclical leverage and monetary policy. Leverage management links aggregate economic activity and changes of leverage impact macro activity through the pricing of risks. Adrian, Etula & Muir (2013) find that the price of risk relates to the leverage. Leverage has positive and significant prices of risk. According to Adrian and Boyarchenko (2012), the return is a pricing factor in equity markets. This study shows the price of risk varies over time by a dynamic asset pricing model. Also, higher leverage depends on instability in financial markets. Higher leverage has been arisen volatility financial in the form of systemic risk.

Pedrono (2017) confirms banking leverage cyclically. This survey defines two channels of leverage pro-cyclicality that exists. Increasing assets raise the value of leverage cyclically and returns of a portfolio.

On the other hand, diversifications of credit risk have an effect on the value rate of fluctuations. This survey shows that the link between leverage cyclically and diversifications of assets.

Pagratis et al. (2014) confirm that the relationship between leverage and return on equity. Return on equity could affect leverage dynamics and modify cyclical variations. Return on equity raise leverage and leverage change by instabilities. This survey shows that the leverage is more in the good times that risk is low and leverage behavior of banks depends on cyclical environmental.

Brunnermeier and Pedersen (2009) survey the relationship between funding liquidity and market liquidity. This research focuses on the asset's market liquidity and trading's funding liquidity. These results show that the business cycle effect destabilizing and market liquidity.

Aymanns and Farmer's (2015) survey dynamic of a leverage cycle. Their finding indicates that leverage accomplishes their risk in banking by using a simple agent-based model. Flexible leverage regulation policy can reduce the domain cyclicality and could help to a device of risk in banking. The other research such as Thurner et al. (2010) and Poledna et al. (2013) review this conception about dynamic and bounded rational.

The mismatch between actual market risk and portfolio risk is the consequence of cyclicality. Some studies such as Geanakoplos (2003, 2010) focus on the leverage cycle and general equilibrium models. Geanakoplos (2010) study the existence of leverage cycles by using the dynamic models for developing leverage behavior and their dynamics. Fostel and Geanakoplos (2008) survey the concept of leverage and show that leverage cycles can outcome on the asset. Leverage influence asset classes.

Also, Hanson et al. (2011) survey the relationship between leverage and systemic risk. They argue that this relationship depends on the competition in financial services. The adoption of capital structure in banking led to an increased cost of funding and less profit. According to these results, less leverage has significantly lower profitability.

Beltratti and Paladino (2015) provide an analysis between leverage and cost of capital. The cost of capital should be positively associated with risk and there is a negative relation between equity ratio and cost of capital. This survey displays the linkage of leverage and

profitability in 44 counties over the period of 2005-2011. Capital of banks can lead to more return on equity and less cost of capital.

Laux and Rauter (2016) survey the cyclicality in US banking leverage. This study show that

Leverage strongly cyclical and this concept relates to the structure of capital and business model of banking. They argue that the understanding of cyclical leverage is important to financial reporting and bank management.

Valencia and Balanos (2018) survey the effect of competition and business cycle on bank capital during 2001 and 2013, for 54 developing counties. According to this research, Banks tend to procyclical behavior by a capital buffer. This study is the emphasis of the competition – stability theorem and banking behavior over the economic fluctuations.

According to studies in developed countries, the determinants of banks' leverage structure are not only capital or liabilities, regulations, but many other variables that are specific to commercial banks as well as macroeconomic variables. Consequently, financial institutions, unlike non-financial institutions, have significant differences in leverage structure for safety net reasons or their legal capital requirements. The determinants of leverage structure of banks are rather various and are the same in any country, but the main determinants are regulation, profitability, and cost of capital, risk, deposits, and asset size.

3. Leverage Behavior: Evidence from Iranian Banks

Leverage cyclicality behavior depends on balance sheet management. The change of balance sheet in asset and liability sides changes the leverage in banking systems. Banks hold a suitable measure of equity to covering the loss.

Leverage is defined as a ratio of total assets over equity. The following models can be used to increase leverage in the balance sheet. Firs the fixed size of the balance sheet, increasing leverage is due to the rise of debt and reduction equity. Then the leverage increase through substituting equity for debt.

Second, the debt size Stagnate then leverage upturn by the sale of assets and reduction in equity. Leverage change by the value of assets.

It seems that none of these two ways is considered in banking systems. Banking systems modify the leverage through change the total asset in balance sheets. The equity measure considers stable. Leverage and total asset simultaneously promote.

Then, there is a link between leverage and value of the asset. The leverage ratio is a suitable instrument for micro and macroprudential policy. The leverage ratio changes during business cycles. The leverage ratio rises during the boom and falls during downturns.

Leverage is pro-cyclical since development and shrinkage of balance sheets magnifies by business cycles. The expansion of balance sheets raises liquidity supply during the boom. To consider the floor level and restriction leverage ratio can fall cyclical behavior.

Leverage can pressure on banks and credit behavior. Leverage influence on volatility credit and bank forced to reduce lending in the long run.

Credit and their changes over the business cycle have been subjects in the wake of the financial crisis. Variation of credit is to be expected in conditions of the Modigliani and Miller (1958) theorem. On the base of net present value, it is expected that credit to increase during the upswing and decline in the downswing. According to the Modigliani-Miller, Equity risk of banks raises leverage. As regards, the debt that is cheaper than equity is more used and the cost of capital increase by leverage. Nevertheless, leverage can be adjusted to the cost of equity. Equity is costly as equity is risky and cost of equity stimulus on return on equity and both of them determining factor leverage.

Credits are the main items on assets in balance sheets. The fact is that credits drive assets. Change in assets effect changes credit. The increased asset must have funded through liabilities. The banks can be fund increasing the asset from their liabilities. Banks adjusted their balance sheet by changing liabilities. Deposits are the main factor in liabilities then the changing asset growth will be offset by changing deposits.

Deposits are important items for adjusting the asset and liabilities side of balance sheets. Considering leverage shows as L and the asset show by A and D is the debt total liabilities exclude of funds are E. Then E is the (A-D) and the leverage ratio is L=A/A-D. Therefore, an

increase in asset implies that dL/dA=-D/ (A-D) ^2. Then, increase assets due to decreasing the leverage ratio. The increase of deposit due to increasing the lending in balance sheets and this increase have to affect raising leverage. The new leverage ratio has increased the amount of the deduction.

The high leverage of banks can have significant negative effects on balance sheets. Equity is costlier in the balance sheet and trade of equity and assets. According to the Modigliani Miller Theorem, the total cost of equity is influenced by several items in balance sheets. Arnold et al. (2012) argue that the high leverage of banks creates more instability. Then the regulation of capital can be a help to the supervision and new banking regulation. On the other hand, Adrian and Shin (2010, 2014) measure cyclical bank leverage as a positive relationship between leverage and total assets. Several papers such as Beccalli et al. (2015) survey the effect of fair value accounting on cyclical leverage. Fair value on the balance sheet recognizes unrealized advances that this concept increases equity and allows the bank to raise debt and expand. Acharya and Ryan (2016) focus on the theoretically of this concept and survey the change in leverage in response to unrealized changes in fair value.

Moreover, Adrian et al. (2014; 2013) provide evidence that leverage and total asset can be related and this evidence survey this concept in Iranian banking systems. The next section surveys the relation of both leverage and asset growth. To recognize the lending assessment of banks and the leverage that banks use to provide this credit, it is important to explore the total assets and leverage. Then, for determinants of leverage behavior, this paper uses the bank data set in Iranian banking systems. Fig 1 shows the relationship between leverage growths versus asset growth. The cyclical leverage mechanism is related to asset growth.
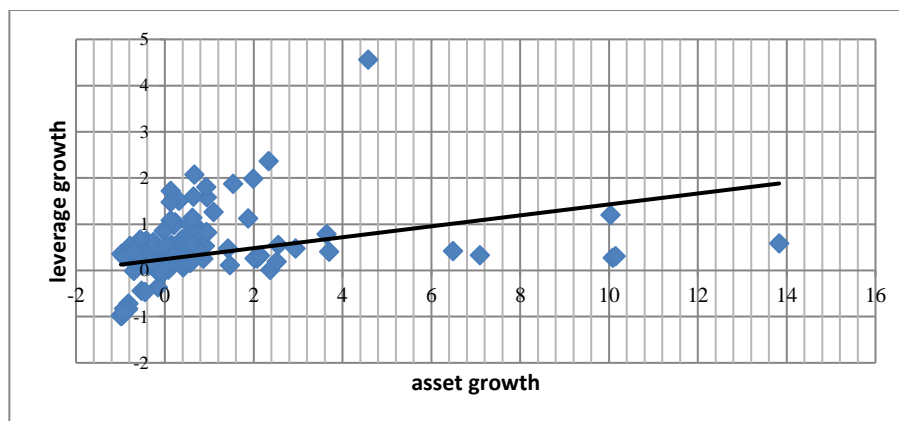
Figure 1: Leverage Growth versus Asset Growth in Iranian Banking System
Source: Research results, according to the Iranian banking dataset.

According to the figure, increasing asset growth leads to increasing leverage growth. Asset growth relates to the leverage and this is highly correlated with leverage. The finding in Adrian and Shin (2010) in the US and Giordana (2012) in Luxemburg confirms that a positive relationship between asset growth and leverage growth approves cyclical behavior of leverage. Nonetheless, the structure of the balance sheet in countries should be focused on. The structure of the balance sheet and a variety of banks is more important to leverage behavior. This paper uses the type of banks and size as the main variable in models of Iranian banking systems. Banks that influence cyclical leverage behavior have a higher share of credits in balance sheets. A higher share of credits explains tending banks for short term credits. Short term credit explain business cycles and fluctuations of economic cyclical banks have short term investment and vulnerable against liquidity shocks. The structure of the balance sheet shows that, in the Iranian banking system, Credit institutions while outside the scope of CBI regulation have provided an import role in financial inclusion, serving those segments of society that banks have neglected.
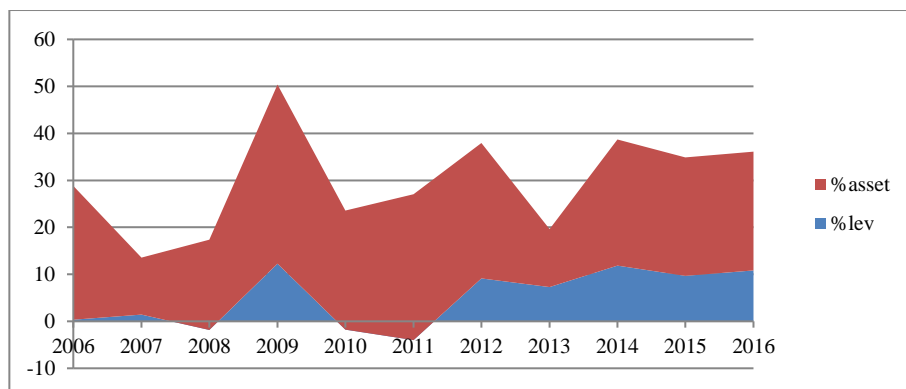
Figure 2: Time Series of Leverage and Total Asset in the Iranian Banking System
Source: Research result, According to the Iranian Banking Dataset.

As a result, these institutions charge higher rates on loans and hence are able to offer higher interest rates on deposits. The growth of these intuitions has pressured banks to offer higher rates on deposits and squeezed profitability of commercial banking.

The banking system in Iran has low capital adequacy and a high level of NPLs .The continued deterioration of the health of the banking system has led to a decline in credit to the private sector which has impacted economic growth. In addition to regulatory and operational changes, financial restructuring including the injection of capital and liquidity into the banking system are urgently required . However, this should be completed in parallel with the wider changes otherwise there is a risk that increased lending is done to companies who will become non-performing. The objective is to stimulate lending to finance productive growth.

4. Empirical Results

4.1 Data and Summary Statistics

The data includes active banks in the Iranian banking system over the period 2005-2015. This financial information retrieves from the central bank dataset and Iranian economic datasets. All financial and banking variables illustrate in Table1.

This table displays the statistical characterizes of banking and economic variables. The mean of leverage growth ratio is equal to 0.4934. The average asset growth 0.3029 and loan growth have an

average of 0.373. Liquid asset ratio represents on average 0.23 of total asset. The size of banks as measured by the log of a total asset in Iranian banking systems is on average equal to 20.72.

Table 1: Summary of Statistic

Variables	Mean	Median	Stdv.
leverage growth	0.4934	0.13	1.88
Asset growth	0.3029	0.2722	0.6562
Deposit growth	0.0265	0.04556	0.3773
Loan growth	0.3730	0.5293	0.066
Inflation	20.72	21.5	7.395
Liquid asset	0.2385	0.2183	0.13203
Size of banks	5.1532	5.2322	0.5822

Source: Research result

4.2 Regression Model

The dataset includes information on the bank balance sheet that is obtained from the banking Database and macroeconomic reports of Central Bank of Iran for the period 2000-2015. We estimated the model with unbalanced panel data for 25 banks in the Iranian banking system.

This section represents panel model estimation and econometric analysis. We employ a dynamic system GMM estimator, which is provided by Arellano and Bond to identify the cyclical of leverage behavior. In this estimation technique, autocorrelation and heterogeneous sectional effects would occur because of interrupted dependent variables. According to random effects for dynamic pooling data, the GLS estimator will be biased. Arellano and Bond proposed their process by generalized method of moments in 1991, which was more efficient than previous estimators. The generalized method of moments for dynamic panel models has been developed by Arellano and Bond. Matrix's tools were applied in the model in order to eliminate the correlation between interrupted variables and explanatory variables. The econometric model is designed to test the cyclical behavior of leverage. This model shows the cyclical properties of leverage in Iranian banking systems. This model uses the

different variables of the banking system that these variables influence the leverage in banking.

The variables that we use the models include the bank-specific variables and macro-economic variables. Banks' specific variables include the loan to asset ratio and deposit ratio and liquid asset ratio. The liquid asset ratio shows that the assets can easily be converted to cash and liquid assets. The higher liquid asset ratio can be making a lower change in leverage ratio banking systems. This model uses interacting dummy variables with asset growth.

The dependent variable is leverage growth in Iranian banking system. The estimation framework is as follows:

$$leverage\ growth\ \ i,t = \alpha 1.\ leverage\ growth\ i, t - 1$$
$$+\mu 1.\ asset\ growth i, t + \beta 1\ Deposit\ growth\ i, t + \cdots$$
$$+\gamma 1.\ Inflation + \delta 1.\ Loan\ growth\ i, t$$
$$+\theta 1.\ liquid\ asset\ ratio\ ij, t + \ \eta 1.\ SIZE\ i, t + \ \varepsilon i, t \quad (1)$$

Where we consider the growth in leverage (leverage growth$_{i,t}$) as depended variables. For considering the dynamic panel data, this paper uses the lag of depended variable as the in a depended variable in this equation by the lagged growth of leverage.

Deposit ratio is calculated by deposits to total liabilities ratio for the bank I at time t. We use dummy variables in order to indicate four types of banks, which are in our sample, including private banks, state banks, privatized banks, and specialized banks. Each dummy variable would be equal to 1 if the bank belongs to one of the four types mentioned in our sample, and D1, D2, D3, and D4 illustrate each dummy variable.

Borio and Lowe (2002) discover that low and stable inflation promotes financial stability; therefore, we use inflation in order to consider macroeconomic effects on the banking system. When inflation is low and stable, excess demand pressures on credit and banks' asset prices are likely to increase. Then the use of this variable is more important for the leverage behavior of banking.

The unit root test for each variable is important in order to avoid a quasi-regression problem for both time series and panel data. Therefore, Levin, Lin and Chu test; Im, Pesaran, and Shin W-stat test,

Fisher test; and Hadri test are used to reflect the common unit root of variables. The estimation results are reported in Table (2).

Table2: Results of Common Unit Root Test

Variable	Levin, Lin, Chu t.	Im, Pesaran, Shin W-stat	ADF – Fisher Chi-square	PP-Fisher chi-square	Hadri stat
Leverage growth	-14.73 (0.000)	-5.401 (0.0003)	93.74 (0.0003)	259.284 (0.0004)	7.22 (0.000)
Deposit growth	-5.1967 (0.000)	-1.5867 (0.0003)	95.35 (0.0004)	183.72 (0.000)	5.97 (0.000)
Loan growth	-8.156 (0.000)	-5.33 (0.0092)	69.127 (0.0036)	198.69 (0.000)	5.59 (0.000)
Liquid asset ratio	-15.198 (0.0002)	-3.7022 (0.0001)	79.552 (0.0001)	127.014 (0.000)	6.07 (0.000)
Asset growth	-9.66134 (0.0002)	-3.546 (0.007)	112.583 (0.000)	189.611 (0.000)	7.25 (0.000)
Size	-29.22 (0.000)	-6.53 (0.0057)	121.43 (0.0007)	212.68 (0.000)	5.66 (0.000)
Inflation	-11.211 (0.000)	-2.781 (0.000)	87.42 (0.0007)	194.84 (0.0005)	12.111 (0.000)

Source: Research results

Dynamic relations contained interrupted variables, and because of such variables and heterogeneous sectional effects, autocorrelation problems would occur. Therefore, Arellano and Bond proposed a new approach, which processed from the generalized method of moments in 1991. In this method, Arellano and Bond represented a two-step GMM estimator, and the validity of the matrix instrument will be tested by the Sargan test. The Sargan test the null hypothesis point out that matrix tools are not correlated with interrupted variables. As can be seen, the null hypothesis is not rejected. Therefore, matrix tools are not correlated with interjected variables, and the practical instrument has the necessary strength for estimation.

Table 3 represents the results of estimations. This table presents our empirical results and shows the relationship between leverage growth and bank-specific variables. The results display the significant lagged

leverage growth coefficient for all banks in our sample. The negative coefficient of this variable can reduce the leverage variable.

Table 3 presents our empirical results and shows the relationship between leverage growth and bank-specific variables.

Table 3: Estimation Results for Regression Model

Estimation	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Leverage Growth(-1)	0.27022** (2.75)	0.4753** (1.94)	0.2597*** (2.01)	0.2061** (2.81)	0.2148** (3.03)	0.25110** (2.13)	0.2319*** (2.91)
Asset Growth	0.6722*** (3.02)	0.6987*** (3.987)	0.8687*** (3.541)	---	---	---	---
Deposit Ggrowth	-0.4176*** (-3.27)	-0.4532* (-1.74)	-0.3683*** (-3.19)	-0. 2820** (-2.12)	-0.4857*** (-3.804)	-0.391*** (-4.62)	-0.3812* (-1.74)
Loan Growth	-0.967*** (-3.06)	-1.891*** (-3.811)	-1.402*** (-2.36)	-1.907*** (-3.93)	-1.517** (-1.783)	-1.162** (-1.88)	0.978** (-1.91)
Liquid Asset Ratio	-1.456* (-1.78)	---	-1.369*** (-3.25)	---	---	---	---
Size	-0.679** (-1.932)	---	---	---	---	---	---
D1*asset growth	---	---	---	0.9024*** (2.412)	---	---	---
D2*asset growth	---	---	---	---	2.257*** (2.39)	---	---
D3*asset growth	---	---	---	---	---	0.9101*** (3.036)	---
D4*asset growth	---	---	---	---	---	---	2.14*** (3.802)
Inflation	-0.0027* (-1.71)	-0.0039*** (-1.92)	-0.0013*** (-2.05)	-0.0169*** (-2.36)	-0.0081*** (-2.45)	-0.009*** (-2.94)	-0.0087** (-1.79)
R-Squared	0.63	0.67	0.78	0.79	0.82	0.85	0.72
Surgan-Test (Prob.)	0.711 (0.33)	0.958 (0.21)	0.894 (0.35)	0.951 (0.21)	0.837 (0.29)	0.769 (0.34)	0.948 (0.20)
AR(1) (Prob.)	-0.4952 (-3.45)	-0.4659 (-3.47)	-0. 657 (-3.11)	-0.987 (-2.971)	-0.587 (-2.98)	-0.658 (-2.38)	-0.876 (-2.74)
AR(2) (Prob.)	-0.1203 (-1.06)	-0.1204 (-1.61)	-0.1191 (-1.26)	-0.2457 (-1.58)	-0.1857 (-1.09)	-0.1304 (-1.43)	-0.1263 (-1.55)
D.W.	2.32	2.36	2.11	2.19	2.17	2.25	2.14

Note: *The significance is indicated by the t-Student that shows in parentheses. In parentheses, t-statistics based on HR and HAC standard errors respectively. ***, **, * denote 1%, 5% and 10% significance levels respectively. Dependent Variable is the Growth rate of Leverage. Results are unchanged when removing the variable from the regression.

The results show that leverage has a positive coefficient in the Iranian banking system. Higher growth in leverage leads to more growth in leverage in the next period. This result is common to the

literature such as Adrian and Shin (2010) survey. A one percent rise in the growth rate of leverage increases the growth of leverage in the next period by almost 0.3 %. The coefficient of the lagged dependent variable change within the range of the (0.20) and (0.47) that this coefficient shows the table. The results show that the coefficient of asset growth is positive and significant.   Then, the one percent increase in asset growth could be increased leverage growth. Deposit growth and loan growth has a negative coefficient in the estimation. The relationship deposit growth and leverage growth is negative then the coefficient of this variable is negative and significant.

This model considers inflation as one of the important macroeconomic variables and finds that inflation has negative effects on leverage growth.

The coefficient of liquid assets to total assets appears to the role of this variable for the leveraged growth. This coefficient is (-1.456) and significant that shows more liquid assets in the balance sheet lead to lower leverage growth. According to the Giordana and Schumacher (2010), Banks that have large liquid assets in their balance sheets could not raise their securities since they manage balance sheet for uncertain events and volatility. Hence, they develop a balance sheet for confronting the crisis. The more liquid asset in balance sheets led to the largest costs for banking and could affect profitability.

This analysis is studying dummy variables for different types of banks. In the Iranian banking system, there are four types of banks (private, state, privatized, specialized). Different structures of different types of banks have an important impact on leverage structure. A dummy variable (D1) is equal to 1 if the bank is a private bank and 0 otherwise. A dummy variable (D2) is equal to 1 if the bank is state bank and 0 otherwise. A dummy variable (D3) is equal to 1 if the bank is privatized bank and 0 otherwise. A dummy variable (D4) is equal to 1 if the bank is a specialized bank and 0 otherwise. By multiplying these variables with asset growth, this paper can separate different bank types according to their effect on leverage growth. According to results, the private bank dummy variable multiplied by asset growth has a positive effect on leverage growth. Also, the coefficient of multiplied privatized bank Dummy variable (D3) and asset growth is positive. On the other hand, the coefficient of multiplied state bank

dummy variable and specialized bank dummy variable is positive. So, the state and specialized banks have a positive effect on leverage growth. Then the behavior of cyclical leverage in all of the types of banks proved.

5. Conclusions
The leverage ratio has been a major factor in the financial crisis. The more leverage ratio has created risk in financial markets. The leverage ratio has an effect on weaknesses and strengthens of risk in financial markets. Leverage can protect banks against unexpected losses and more risks. Leverage is more in the times that risk is low and leverage behavior differs in the good and bad times.

The countries with large banking systems are using a leverage ratio and focus on planning this ratio. These countries have sustained a leverage ratio together with risk-based capital adequacy requirements. The regulators of these countries focus on the leverage and the behavior of banks. The leverage ratio is the best tool for controlling risk and preventing vulnerability in banking systems.

According to Adrian et al. (2014; 2013), leverage and total asset can be related and this evidence surveys this concept in Iranian banking systems. To recognize the lending assessment of banks and the leverage that banks use to provide this credit, it is important to explore the total assets and leverage. Then, for determinants of leverage behavior, this paper uses the bank data set in Iranian banking systems. The results show the relationship between leverage growths versus asset growth. The cyclical leverage mechanism is related to asset growth. A positive relationship between asset growth and leverage growth approves cyclical behavior of leverage. The structure of the balance sheet and a variety of banks is more important to leverage behavior. This paper uses the type of banks and size as the main variable in models of Iranian banking systems. Banks that influence cyclical leverage behavior have a higher share of credits in balance sheets. A higher share of credits explains tending banks for short term credits. Short term credit explain business cycles and fluctuations of economic cyclical banks have short term investment and vulnerable against liquidity shocks. The structure of the balance sheet shows that, in the Iranian banking system, Credit institutions

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