

## **Impact of Fractional Reserve Banking System on the Ownership Structure of Economy**

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### **Abstract**

*After the recent financial distresses, extensive debate is being made on the modes of financing and Islamic modes of financing is being emerged as an antidote. This study discussed that it is the nature of money not the modes of using it, which causes distresses. Current monetary system is based on the fiat money and hence on fractional reserve banking which has serious implication to the ownership structure in economy. To analyze this phenomenon, the sample of 25 banks has taken from Karachi stock exchange 100index for the period of 2008-2012. In panel data analysis, the study used the linear regression and correlation coefficient models to find relationship between the variables. It is found that money expansion through credit creation leads to inflation and nonperforming loans which affects the ownership structure in the economy.*

**Keywords:** ownership, fiat money, credit creation, nonperforming loan, inflation.

### **I. Introduction**

Since the failure of Bretton woods system in 1971 no currency is fully backed by gold. Under Bretton woods system, international dollar holdings were redeemable at the rate of US\$35 per ounce of gold. The currency which is not fully backed by gold called the fiat money. Fractional reserve banking deals with fiat money where a small portion of deposit is kept by the banks and the rest is lend out on some stipulated interest rate for some specific time period. This process of lending money continues and termed as credit creation.

Henry Thornton (1802) was the first who established relationship between quantity of money supply, its relation with general price level and purchasing power of money in his book "Quantity Theory of Money". This theory described that the quantity of money has positive relation with general price level and negative relation with purchasing power of money in an economy. This theory mainly hypothesized that the growth rate of money supply determined the inflation level fundamentally. Fractional reserve banking system (FRB) is the very important source of increasing money supply in

economy which causes inflation, low purchasing power and hence nonperforming and default loans.

FRB has serious effects to the ownership structure in economy as it creates ownership from nothing and without taking the risk. It also has the element of *riba* which is prohibited in Islam. The person, who is unable to pay back the loan amount, has to transfer his ownership of real wealth and in aggregate default is sure to occur. Money creation through FRB leads to inflation and hence all the subjects of economy have to pay for it through inflation. On national level, economic instability, injustice, low growth and hence low morals and ethics along with number of social vices are the long run consequences of current monetary system where poor is becoming poorer and rich is becoming richer. But Islamic banking system is also operating under the fiat money system while the Muslim scholars have also given the fatwa on fiat money.

Many authors have provided critique regarding the economic consequences of fractional reserve banking (Bagus and Howden, 2010, Davidson, 2012, Shibli, 2011) while many other authors have discussed the Islamic perspective of ownership, fiat money and fractional reserve banking (Rab and Anjum, 2010, 2011, Meera and Larbani, 2006, 2009). Analyzing the economic instability caused by fractional reserve banking, its implications to the ownership structure while inculcating the Islamic perspective of ownership and money is indeed in need. Both the Islamic and conventional banks are based on fiat money and are the main sources of creating money through fractional reserve banking, therefore for empirical evidence, a sample of 25 firms (whole population of Islamic banks and 20 conventional banks) is taken from banking sector of Pakistan for the period of 2008-2012 to answer the question “what are the effects of fractional reserve banking system on the ownership structure of economy?”

The previous literature lacked in empirically analyzing the ownership effects of fractional reserve banking as mentioned by Meera *et al.* (2009) in their paper’s limitations. This study has both contextual and theoretical contribution along with practical significance for economist and *ullmah* in policy making because in “Islamic Republic of Pakistan” all the policies should have accordance with *shariah*.

The objectives of this study are:

- To analyze the impact of money expansion on inflation level of economy
- To analyze the relationship between money expansion and nonperforming loans.
- To analyze the impact of credit creation on the ownership structure of economy

This study is organized into thematic sections. After introduction, the second section gives a review of the papers on this issue. Section three describes variables, research methodology, data and the analytical models. Section four includes the results of this study and section five contains the findings, conclusion, limitations of the study and future research directions.

## II. Literature Review

### A. Ownership Concept in Different Economic Systems

It is the nature of human beings that they want reward against the efforts they put on and rewards they attain, come under their ownership. But to own the resources and to get rewarded, a man has to act within the jurisdictions specified by prevailing economic system. The concept of ownership, its types, limits and ways are different in different economic systems. There are three main economic systems which are capitalism, socialism and Islamic economic system. Rab *et al.*(2011) explained the features of these economic systems. He said that in capitalism free enterprises, ownership of resources and interest on investment is encouraged but in this interest based system the rights of needy person is exploited and labor cannot get fair and just wages because investments are made for the pleasure of capital owner. On the other hand, communism goes to other extreme where ownership of resources is discouraged which decreases the motivation level that results in low competitiveness of economy by decreasing the courage to strive for better reward.

Rab *et al.*(2011) have discussed Islamic economic system in detail and said that Islamic system having the centrist approach guarantees the social justice by enforcing Zakah and prohibiting interest. Distributive law of inheritance and provision of Qarz-e-Hasnain in case of need prevents the excessive concentration of wealth. Islamic social system completely preserves the rights to own things and describes the unique concept of ownership and protects it through social justice system. Meera *et al.*(2009) described the ownership concept in Islam and said that, in Islam true and ultimate owner of each and every thing is Allah Almighty and a man is the vicegerent of Him. He celebrates the right of ownership to man so that he can perform the social duties and enjoy the blessings of Allah but within a certain limits.

Meera *et al.*(2009, P.3) defined the Islamic perspective of ownership as “the ownership is a legally defined relation between a person and a thing and/or its utility that one can use only in *halal* ways and prevent others from using it unless by proxy and the owner of the thing can get compensations for it”. So, Islam has cleared the legal ways to create ownership and also has mentioned the illegal or *haram* ways to protect the interest of man and for equal distribution of wealth for the smooth running of social system.

### B. Wealth Measurement and Fiat Money

Correctness of measurement is the very first and basic requirement for economic justice. Measurement is simply the comparison of a quantity with some unit and this comparison is done by using an appropriate tool. So wealth measurement and using correct unit or currency which is free of any fraud and manipulation is prerequisites of social justice. Rab *et al.* (2010) argued that justice and peace are only possible with the correct wealth measurement with a unit of wealth as currency and currency must have known and definite intrinsic value with stable purchasing power.

Rab *et al.* (2011) stated that silver and gold are true Islamic sources of exchange but Islam does not bind to use only these sources as medium of exchange because in some situation they may not act as most efficient medium of exchange. Meera *et al.* (2006) described the features of fiat money and said that fiat money basically symbolizes the basket of national products whose quantity consistently reduces to sustain the system of interest. This manipulation of unit or scale is a serious crime which results in inflation.

Quran Hakim as the code of conduct for whole humanity especially for Muslims also gives commands regarding the measurement and weights

*“He has set up the balance (of Justice). In order, that you may not transgress balance. So establish weight with justice and fall not short in the balance.” (Q55:7-9)*

He further proposed that, more than one medium of exchange should be used because they have mutual stabilization effects and special currency stabilization measures should be adopted. Oberholster (2010) stated that Real monies like the gold and silver remained the part directly or indirectly of international monetary system until the breakdown of Bretton Woods in 1971. But now a day's all the national currencies are fiat money. Fiat money has no intrinsic value like electronic and paper money and people do not value it by its own sake but by the order of law which makes it legal tender. Meera *et al.* (2006) commented that floating exchange rate system is being prevailed in the economy as no currency is fully backed by gold because it is not exchangeable for gold. Rab *et al.* (2011) argued that today's monetary system is based on fiat money and fractional reserve banking which is based on interest. While the short history of monetary system shows severe depressions, monetary crises, hyperinflation and starvation due to the unceasing credit creation.

### **C. Fractional Reserve Banking and its Effects on Ownership**

Interest is the very important part of fractional reserve banking (FRB) or of fiat money. In FRB a small portion of deposit is kept by banks and rest is lent out on some interest rate. This small fraction is decided by the central bank of country as in the case of Pakistan “State Bank of Pakistan” decides the statutory reserve rate and it is the minimum requirement which must be kept by banks for withdrawal purposes. Meera *et al.* (2006) described that through credit creation money grows in economy in form of debt. When a person takes loan on specified interest rate, the extra amount paid on principal creates purchasing power for the creator of fiat money without taking any risk and it is also characterized as *riba*. Meera *et al.* (2006) further explaining the devastation of interest by saying that the extra amount to be paid in the form of interest does not exist in the form of money and in aggregate default will surely occur because amount of money to be reimbursed is always less than the amount reimbursed in aggregate, in results the real wealth in the form of collateral and sovereignty which is attached to the wealth shift to those who create fiat money. Its effects are more worsen in case of developing countries where they are getting indebted day by day. Instead of investing on the welfare of country they are striving to return the loans. This injustice is against the teaching of Islam, in Islam money always flows from rich to poor (Meera *et al.*, 2009).

A huge debate is being made on the Islamic banking and finance, its modes of financing, performance and even its accordance with *shariah* prescribed rules and regulations. But the issue to think upon is that the Islamic banks are also using fiat money. Using a wrong thing in a good way does not imply that the illegality has converted to legality. Ismail and Achmad (2009) commented that the interest based system, fractional reserve banking system and fiat money system are three main factors contributing to the instability of economic system. Among all these, Islamic banks can avoid only interest based system by trade financing and sharing the loss and profit and unfortunately the other two very important factors are being inculcated in Islamic banking system too. Meera *et al.* (2009) argued that fractional reserve banking has the vulnerable

implications to ownership because it causes inflation and through inflation all the persons in economy paid for the transfer of wealth. Real economy, measured by the growth in real GDP grows at lower rate than the monetary aggregate.

Meera *et al.* (2006) concluded by questioning the nature of money not questioning the modes of islamic financing that the islamic banks are more damaging than conventional banks under the fractional reserve banking .Here the need comes to empirically analyse the filthiness of fractional reserve banking sytem so that the economist and Muslim scholars may put attention on it and the up lifting poverty can be controled .

### III. Variables

To measure the ownership effects of fractional reserve banking different explanatory or proxy variables are being analyzed which are as under.

#### A. Total Deposit

Deposit is the money you place in the bank out of your savings in the custody of bank. Total deposits in the perspective of banks is the aggregate of all deposits appeared on the liability side of balance sheet of banks. Meera *et al.* (2009) discussed that money created on deposits through credit creation changes the ownership structure in economy. It is taken as a proxy variable of physical or original money to measure how much money banks create on their original deposits.

#### B. Total Advances

It is the aggregate of all types of advances or loans which create interest revenue. Usually it represents the major chunk of banks 'assets. Bagus *et al.* (2010), Meera *et al.* (2006,2009) and Choudhury and Hussain,( 2005) discussed that credit or money creation depends on the reserve requirement. It is the proxy variable to measure the money expansion through fractional reserve banking and credit creation. For conventional banks, sum of all types of loans issued on some interest rate is taken as the measure of money created by banks through FRB while for Islamic banks. Total advances in Islamic products are taken to measure the money expansion as mentioned by Meera *et al.* (2009).

#### C. Inflation

Inflation is termed as a rise in general price level of goods and services within a specified period of time in an economy. Fractional reserve banking causes credit creation and leads to inflation (Meera *et al.*, 2006, 2009) and (Bagus *et al.*, 2010) .Inflation is taken as a proxy variable of ownership transfer because according to Meera *et al.* (2006), all the subjects of economy have to pay for the transfer of ownership caused by FRB through inflation. For inflation proxy, annual consumer price index is taken from "Pakistan Bureau of Statistics".

#### D. Total Default Loan

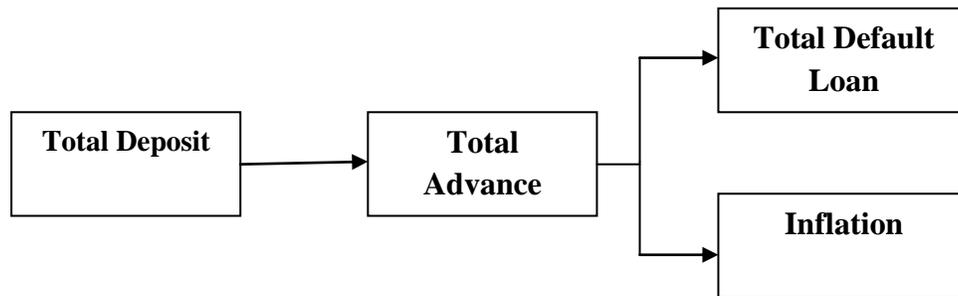
Default occurs when the debtor is unwilling or unable to pay his debt obligations according to the contract of debt. When a person doesn't pay his debt obligations, he has to transfer his ownership on real wealth to the lender of money e.g. mortgage contract (Meera *et al.*, 2006, 2009). Meera *et al.*(2006) proved in their mathematical model that, default will surely occur at any period in aggregate. Unpaid or defaulted loan is the

second proxy variable to measure the ownership effects. The amount of default loan is taken from the annual reports of our sampled conventional as well as Islamic banks.

#### IV. Conceptual Framework

The conceptual frame work of the study is:

**Figure1: Conceptual Framework**



##### A. Hypothesis

- H1:** there is a positive relation between total deposits and total loan.
- H2:** there is a positive relation between total advances and total default loan.
- H3:** there is positive relation between total loan and default loan.

##### B. Research Methodology

In this section the basic research design is discussed. Further, Regression equations are derived and test are applied on the sample of 25 banks selected from KSE 100index. Discription of research designn of the study is as under.

###### *Panel Data*

Panel data follows a given sample of individuals over time, and thus provides multiple observations on each individual in the sample. This study uses the panel data for analysis because panel data for the economic research has several advantages over cross section or time series.

###### *Linear Regression Model*

Regression is conducted to see the effects of one variable on another or to predict one variable from one or more than one variables. To analyze the ownership effects of fractional reserve banking, linear regression has been applied on our sample of 25 banks from 2008-2012.

###### *Equations*

Equation is a written statement indicating the equality of two expressions. It consists of a sequence of symbols that is split into left and right sides joined by an equal sign. To analyze the “interdependent relationship” among variables three equations are derived.

**C. Equations:**

**Equation 1**

To analyze the relationship between bank deposits and bank advances following equation is derived.

$$TA = \alpha + \alpha_2TD + \epsilon$$

To align the values of variables, natural logarithm is taken. The equation will be

$$LTA = \alpha + \alpha_2LTD + \epsilon$$

**Equation 2**

To analyze the relationship between total advances and total default loan following equation is derived.

$$TDL = \alpha + \alpha_2TA + \epsilon$$

After taking the natural logarithm, the equation will be

$$LTDL = \alpha + \alpha_2LTA + \epsilon$$

**Equation 3**

To analyze the impact of total advances on inflation following equation is derived

$$INF = \alpha + \alpha_2TA + \epsilon$$

To align the values of variables, natural logarithm is taken. The equation will be

$$LINF = \alpha + \alpha_2LTA + \epsilon$$

Where

- LTA**= natural log of total Advances
- LTD**= natural log of total deposits
- LTDL**= natural log of total default loan
- LINF** = Annual inflation rate
- $\alpha$**  = intercept
- $\alpha_2$**  = respective coefficient
- $\epsilon$**  = error term

**V. Analysis and Findings**

In this section the models are analyzed in the light of different tests and the empirical results are interpreted. The main analyses are:

**A. Correlation Analysis**

Before testing the coefficient models, the sample data also tested for possible multi-co linearity. Results are presented in the below Table 1 and it is evident from results that most cross correlation terms for the explaining variables are small.

**Table 1: Multi-co linearity Analysis**

Variables	LTD	LTA	LTDL	INF
LTD	1.0000			
LTA	0.8965	1.0000		
LTDL	0.2711	0.6911	1.0000	
INF	0.1263	0.5657	0.0134	1.0000

**B. Regression Analysis**

Regression analysis is done to estimate the impact of independent variables on dependent variables. The estimated results of three models are presented in Table 2.

**Table 2: Regression Results**

Model	R <sup>2</sup>	Adj. R <sup>2</sup>	Std. $\beta$	t	Significance
1	0.804	0.802	0.896***	22.43	0.000
2	0.478	0.473	0.691***	10.65	0.000
3	0.348	0.343	0.565**	6.01	0.001

First model analysis shows very high value of R<sup>2</sup> which indicates the high explanatory power of the model. The high values of coefficients (89%), and having the P value (.000) within the acceptable range indicates very strong and significance relation between variables. In the light of empirical results H1 (there is a positive relation between total deposits and total loan) is accepted. In second model the relationship between advances and default loan is analyzed. The empirical results showed the acceptable values of coefficient (69%) and p value (.000).

Consequently, in the light of empirical findings, second hypothesis (there is a positive relation between total advances and total default loan) is accepted. In third model, the relation between advances and inflation is analyzed. The R<sup>2</sup> value (34%) and significance level (.001) shows very strong relation between money expansion and inflation in economy. thereafter, H3 (there is positive relation between total advances and inflation) is accepted.

**VI. Discussions**

According to empirical findings, deposits and advances have a positive and significant relationship that shows that banks are expanding artificial money in economy which has far-reaching consequences. Therefore, it is inferred from the results that the money expansion through credit creation has the implications for ownership structure in economy as stated by Meera *et al.* (2009). The variable advances and default loan shows very strong relationship which indicates that advances are not repaid and it is inferred-same as Mathematically proved by Meera *et al.* (2006) - on aggregate default is sure to occur which leads to transfer the ownership of real assets to banks. Advances and inflation shows positive and significant relationship. Advances are the source of money expansion and money expansion caused inflation in economy. These results are in accordance with the analysis of Bagus *et al.* (2010), Rab *et al.* (2010, 2011) and Shibli (2011).

## VII. Conclusion

This study looked at fractional reserve banking system and its impact on ownership structure in economy. Both, the Islamic and conventional banking system based on fractional reserve banking system and fiat money. Therefore, both banking systems are inculcated to analyze aggregate effects. In the light of empirical results it is concluded that through credit creation, artificial money is being injected in economy. Money expansion and loan has serious implications on ownership structure in economy. Credit creation causes inflation in economy and the whole nation has to pay for this credit creation. Advances also results in nonperforming loans. The person who cannot return the loan has to transfer his ownership on real wealth to banks. We can generalize these findings on national and international level and can infer that fractional reserve banking system is damaging the ownership structure and it is more harmful for the developing nations where they are getting indebted day by day and losing their ownership on assets along with sovereignty. Interest and fiat money is at the back of fractional reserve banking system. So, the establishment of Islamic economic system with correct wealth measurement unit and without interest is indeed in need. The last verse revealed to the believers must always be kept at heart to remind us of the threat of the Creator on this issue.

*“O ye who believe! Fear Allah, and give up what remains of your demand for usury, if ye are indeed believers. If ye do it not, take notice of war from Allah and His Messenger: but if ye turn back, ye shall have your capital sums; deal not unjustly, and ye shall not be dealt with unjustly “ (Al-Baqarah: 278-279).*

## VIII. Study Limitations and Future Research Directions

This study is the first attempt to empirically analyze the ownership effects of fractional reserve banking system in the context of Pakistan by undertaking a small sample size. Conducting the study on national and international level will enhance the generalizability and authenticity of the subject.

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