

Does the Securitization Lead to the Infinite Money Creation? A Structural Comparison

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Abstract

A major issue is of credit creation and control which is vital for the development of a healthy economy and financial system. Creation of credit money has become an imperative not only for smooth running of trade industry and commerce but for fiscal requirements as well. We argue that the concept of securitization will cause another level of money creation. Put differently, the securitization process will lead to the infinite money creation in the economy by selling and re-selling the debt to third party. In this paper, we will show the traditional money creation by central banks as monetary tool to control money supply and investigate how the commercial banks can create money by securitization which essentially lead to financial crisis. Last but not the least, the money creation from Islamic perspective is also discussed.

Keywords: Credit Creation, Securitization, Infinite money creation

1. Introduction

The basic banking principles of banks are the institutions that issue credits by collecting deposits in the economy (Mitchener and Richardson, 2013). The basic functions of banks are maturity conversion. Because in general, depositors tend to evaluate their savings in the form of short-term deposits, while borrowers seek long-term loans. At this point, banks provide the basic needs of the economy by borrowing short-term funds and lending long-term funds.

Essentially, commercial banks deal with credit. It is well understood that interest is the price that motivates them how to make decisions in the businesses. The commercial banks originally started as financial institutions for supplying the short term credit requirements for trade industry and commerce; this primary function even exist today. As far as the reserve requirement concerns, the legal framework never restricted the credit creation power of commercial banks. On the other hand, there are legislation requirements that the central bank of each country to oversee and control that power so that it may not be used to the detriment of social well-being.

However, the usage of a securitization channel is also applied to hedge the risk of maturity mismatch within the context of Basel accords. It is known that banks frequently apply to the issuance of securities and the demand for these issuances is high. Securities are included in the assets for the investor while they are in the liabilities for the issuer. In other words, when a firm realizes the issuance of a security, the assets in its balance sheet are transferred into its liabilities.

By doing so, the commercial banks can create more debt by selling and re-selling the debt to another party, this is so called financial asset securitization. The securitization is the most basic method of taking bank assets out of balance sheet. The financial assets previously marketed are converted into securities and reintroduced into the system as a marketable asset. When an instrument, which is previously marketed as a financial asset in capital markets, is included in the system for securitization and remarketing, then it becomes a derivative asset. Namely, the financial instruments that are currently based on a valued asset within the financial market and that provide a secondary or more marketing opportunity are known as derivative instruments. The number of derivations of a derivative instrument is at the centre of the global financial crisis, being the most important problem of the

system. When a financial asset becomes derivative assets as a basis, it begins to become toxic. The higher the degree of differentiation, the greater the rate of toxicity is. The fact that a financial asset is removed from the asset results in a toxic effect. The main source of toxic derivatives is conventional banking and financing companies.

In this study, we argue that the concept of securitization will cause another level of money creation. The commercial banks will sell the debt to third party if there is loan opportunity. Put differently, the securitization process will lead to the infinite money creation in the economy. In this paper, we will show the traditional money creation by central banks as monetary tool to control money supply and investigate how the commercial banks can create money by securitization which essentially lead to financial crisis. Also the effect of money creation through the securitization is developed theoretically in such context.

The paper is divided into five Sections including the introduction. In Section 2 we shall explain briefly the theory and process of the traditional credit creation. In the Section 3, we will demonstrate the effect of securitization in the economy as second layer of money creation with mathematical formula. Section 4 discusses the money creation from Islamic perspective. Section 5 summarizes the argument of the paper and contains some conclusion remarks.

2. Credit Creation Process – Traditional Method

We have already differentiated between (i) currency or legal tender money and (ii) bank credit or money. The two together constitute the M1 version of money supply. The relationship between them lies at the heart of the credit creation process the commercial banks follow.

It is clear that the volume of money (which issued by central bank) in an economy serves as the *base* for generating the credit. Portion of the base money always remains *inside* the central bank while the remaining part of it is held *outside* by the general public. Then the general public deposits a part of the *outside* money with them in commercial banks as demand or time deposits as stated earlier. Collectively they constitute the *cash* deposits of the commercial banks. A portion of deposits, let say 10%, the banks have to keep with them as statutory reserve to meet the daily withdrawal needs of the depositors; the commercial banks can lend on interest the remaining of the deposits. The credit creation process is shown in Figure 1.

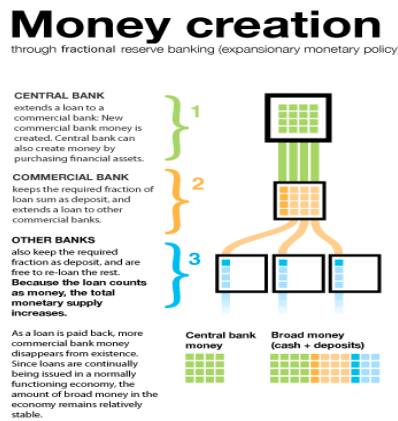


Figure 1: Money creation process (Source: Wikipedia)

However, the sum loaned is credited to the account of borrowers. Thus, loans generate what we call *credit* deposits. These loans and deposits appear one for the other as contra entry in the bank balance sheets. The banks make no distinction between the two sorts of deposits – cash or credit – in their lending operations.

Now by giving an example, we are going how credits are created in commercial banks;

$$TC = \frac{D}{SRR}$$

TC: Total credits created

D: Initial deposit
 SRR: Statutory reserve requirement

Let say the initial deposit is \$100 and the statutory reserve requirement is 5%, the commercial banks can create total of \$2000 credits. The Figure 2 illustrates the credit expansion process.

Bank A Asset		Liabilities	
Reserve	5	Deposits	100
Loans	95		
Bank B			
Reserve	4.75	Deposits	95
Loans	90.25		
Bank C			
Reserve	4.51	Deposits	90.25
Loans	85.74		

Figure 2: Illustration of the credit expansion process

The next question is how many times of credits created compared to initial deposits? It is not difficult to figure out by help of the concept of money multiplier:

$$MM = \frac{TC}{D}$$

MM: Money multiplier

TC: total credits created

D: initial deposit

Therefore, the money multiplier will be 20. It means that the commercial banks can create 20 times of initial deposits if the statutory reserve requirement is 5%.

3. Money Creation through Securitization

The deposit multiplier is the basis for the monetary transfer mechanism. The deposit multiplier, organized with reserve ratios, allows the liquidity needed by the market to be provided without the need for emission at any time. Thus, the inflationary effect of emissions does not occur.

M2 money multiplier definition the relationship of divergence from reality in the understanding of the market with reserve requirements and when assumed that households do not hold free reserves and cash preference ratio is 0, then the related formula is as follows (Ünsal, 2011; 601);

$$Deposit Multiplier(k) = \frac{1}{Required\ reserve\ (r_r)}$$

The need to add a new factor to the ability of banks to create money, which can be reached by deposit multiplier formulation, has emerged. In addition to the compulsory provisions to be applied to the calculation of bank

money formed with the definition of M2 money, the rate of converting into securities will also be added to the studies to be carried out in this field. Other factors may also need to be added. The formulation of the multiplier also results in the source of the credits formed by converting them into securities and re-entering the obtained resource into the system. (ceteris paribus)

The multiplier represents the ratio of leverage offered to banks when all other conditions in the financial system are fixed, assuming only the reserve is allocated.

Deposit multiplier is the mathematical expression of bank money. It is generated by credit, which is the mathematical expression of the continuation of the monetary system until it returns to the system as a deposit and joins the system by converting it back into a loan and then converts it back into a deposit and back into a loan and goes below the required reserve. The bank money created means the amount of credits created. (Bernanke, Blinder, 1988; 439)

However, the securitization, heavily used intensively for the purpose of hedging the risk, doesn't to stop the ability of the banks to generate money at this point, and when the securitization exists, the bank money that can be generated cannot be expressed through the possibility of generating money once more.

Bank money, which is formed in the system, can be converted into securities at every stage and re-funded to the bank. In other words, the bank money created returns to the system as a new resource through both deposit and securitization.

In the study conducted by Carpenter and Demirel in the USA, it is stated that there is no significance between the classical currency multiplier model and the current situation (Carpenter, Demirel, 2012; 63). In the study searching for solutions to this reality, the fact that the existing loans of the banks are repackaged and converted to resources has been excluded from the equation.

In a different study, Johnston (1981) focused on the leakage model. In a review of the euro zone, Lopreite emphasized that the relationship between currency multiplier and securitization should be examined. (2012)

Mallett (2009) emphasized in his study that segregation could establish an infinite credit mechanism. However, the formula was not developed in the study. Prohibition of securitization is presented as a proposal.

The current model leaves the function of the classical depository multiplier in the monetary transfer mechanism and is incapable of managing the monetary base. The fact that there is an abundance of liquidity on the market causes balloon formation in asset markets and risk source for Assume that the banking system has packaged all the credits it has created into assets through securitization and that it has provided additional funds to emerge as a new source of funding from the financial markets. The discount margin applied in the issuance of securitization and called 'haircut' let be 0. Suppose that the reserve ratio (r_s) to be kept for securities issued by banks is determined by the Central Bank, which regulates and/or supervises the system as the same value as the reserve ratio for deposits. This will allow performing calculations more easily. In this case, the Bank's money created (ΔDD_0) in other words the total of bank loans and emissions is as follows;

$$\Delta DD_0 = \Delta R \times k \text{ from the first state } (\Delta R = \text{Emisyon})$$

$$\Delta DD_1 = (\Delta DD_0 \times (1 - r_s) \times k)$$

is passed to the second state. The result obtained from the number of transactions is as follows;

$$\Delta DD_n = (\Delta DD_{n-1} \times (1 - r_s) \times k)$$

Thus, the total money in the system after n times securitization can be expressed as follows:

$$\Delta DD_n = \Delta R \times k \times (1 - r_s)^n \times k^n$$

Mathematically, total bank money and the emission after n times securitization is as follows;

$$\Delta DD_T = \Delta DD_0 + \Delta DD_1 + \dots + \Delta DD_n$$

ΔDD_T represents the total money created.

As a result the equality at the infinite scale is as follows;

$$\Delta R \times k \sum_{i=0}^n (1 - r_s)^i \times k^i$$

Through the above mentioned concept, the amount of bank money that can be generated when all the loans are securitized only once for hedge purposes, there is no resource other than deposits and there is no discount on securities while there is no leakage and unrecorded sources, however this resource is subject to mandatorily keeping reserve¹ and all monetary system is assumed to be kept under electronic records the economy.

The logic behind the securitization of loans is based on the fact that a distributed risk will not be redistributed since this transaction is intended to hedge the risk. However, it is also true that new risks are being taken with new resources and need to hedge again. With this method, the system can generate bank money up to an infinite size.

Since the total reserve, the required reserve ratio applied to deposits and the required reserve ratios of formula applied to the securities issued by banks is always known, and while unregistered equals to zero, even all emissions can be monitored electronically and all other effects are assumed neutral, the total bank money to be reached up to the number of securitized transactions (n) is determined with the formula below.

$$\begin{aligned} \Delta DD_T &= \Delta R \times k \times \frac{1 - ((1 - r_s)^{n+1} \times k^{n+1})}{1 - ((1 - r_s) \times k)} \\ 1 - ((1 - r_s)^{n+1} \times k^{n+1}) &= \frac{\Delta DD_T \times (1 - (1 - r_s) \times k)}{\Delta R \times k} \\ (1 - r_s)^{n+1} \times k^{n+1} &= 1 - \frac{\Delta DD_T \times (1 - (1 - r_s) \times k)}{\Delta R \times k} \end{aligned}$$

In other words, the total deposit money amount that can be reached by new securitization can be easily calculated when the first reserve ratio and compulsory reserve ratios are known. Here, “n” is the number of securitization.

The total deposit money amount obtained at a given time is always known when the system is fully monitored electronically. Since the total amount of money injected into the system and the required reserve ratios are always known, the n value, which is the number of securitization at a given time, can also be calculated.

In this case, the aim is obtained by taking the square root instead of exponentiating. Taking the logarithm of a value shall mean doing a transaction with its root as a mathematical expression. We can illustrate this with a logarithmic formula as follows.

$$n = \frac{\ln\left(1 - \frac{\Delta DD_T \times (1 - (1 - r_s) \times k)}{\Delta R \times k}\right)}{\ln((1 - r_s) \times k)} - 1$$

In the above formula, the total money generated on the system, the first reserve, the reserve deposits applied to the deposits, and the required reserve deposits applied to the securities issued can be accessed at any time, so it can be understood how many times the system has grown its resources by the way of realising them at a given time. At this point, the value assumed to be constant for the formula to be consistent is the reserve ratios to be

¹ About the required reserve ratios applied to securities issued by banks in Turkey [http://www.tcmb.gov.tr/yeni/mevzuat/BANKACILIK/zk-teblig\(2013-15\).pdf](http://www.tcmb.gov.tr/yeni/mevzuat/BANKACILIK/zk-teblig(2013-15).pdf)

applied to the securities and deposits issued. In the case that the mandatorily required reserve ratios vary during the ongoing securitization process, the coefficients for the varying rates should be included in the formula. The above limit for r_s in this formula is as follows.

$$r_s < 1 - \frac{1}{k} + \frac{\Delta R}{\Delta DD_T}$$

Equality represents the non-reserve allocation of the entire emission amount.

4. Money creation from Islamic perspective

Hasan (1985) was an important contribution towards investigating the economics of profit sharing ratio in Islamic commercial banks at macro level where chances of overall negative or zero return on investment would be negligible and hence attention was given on sharing of profits only. He first described the behavior of users and suppliers of funds in an economy where both the interest as well as the profit and loss sharing (PLS) systems existed, and then extended his analysis to the situation where funds could be supplied only on a PLS basis.

Siddiqi (2006) claims that even when *mudarabah* or other PLS devices are not used by Islamic banks on their assets side; the ability of Islamic banks to absorb business shocks will remain competitive as long as they apply principles of PLS on the liability side. As long as banks keep investing in debt as assets they cannot make high profits in better times in the economy due to predetermined profit rate. Asking their depositors to participate in business losses without giving them the hope that they could earn higher profits in better times that would discourage Islamic bank depositors to continue with Islamic banks.

According to Hasan (2008) the Islamic banks can also create deposits² in the same way as conventional banks how created deposits. Thus, it is important to ask – and this is our main objective -- what instruments or tools the central banks could use to control deposit creation in the case of Islamic banks. However, the objectives, credit creation modes, the nature of advances and security cover demands in Islamic banks would be different from those conventional banks.

Instead of innovating something original rooted in Islamic beliefs, we are going to spend our time in looking modification here, and submitting as new facility there. The result is that in Islamic banking tend to be more on the features of mainstream and less on Islam features. The Islamic banks cannot operate in vacuum, the basis of the legal framework, regulatory norms, rating norms, transaction forms, benchmarking and instrument structures of Islamic banks are derived from the mainstream.

Since there is a little *Shari'ah* objection on deposit creation by Islamic banks, Islamic banks can also create deposits in a same way as conventional banks do. The Islamic banks contracted with depositors that the depositors have right to withdraw their money as term and conditions are agreed by the parties. The Islamic banks, as long as, fulfill their obligations in the contract and utilize the money for *Shari'ah*-compliant transactions, the depositors do not insist that the Islamic banks have to keep a 100% reserves. Then what is the problem? The problem is not the credit creation, the problem is how many times credit created compared to initial deposits and how these deposits being used.

The usual marketing kits are brochures, booklets and advertisements. In Islamic banking things that should be explained in brochures and booklets are like:

- 1) Permission from depositors for bank to use their deposits for banking business.
- 2) The mingling of the *Wadiah* and *Mudarabah* deposits of customers with the bank's capital to carry on banking business.

If the above arguments are accepted, one has to ask that how to control credit creation in Islamic banks. There are several tools are available to control the credit creation such as bank rate policy, open market operations, variation of reserve ratios, quality control, etc. Islamic prohibits interest; therefore, the usage of bank rate policy is questionable. Some Islamic economists (Siddiqi, 1992) make a suggestion that the profit and loss sharing ration can replace the bank rate policy. As we understood, the interest is the price for loanable funds whereas the PLS is not. Furthermore, the government securities which are available in open market operations made this instrument also out of the place.

² In Islamic banking the credit creation process is called deposits creation process.

Mudaraba is a contract in which a financier, say a bank, provides funds to an entrepreneur (firm) for investing in a business venture to share profits in an agreed proportion, the loss falling on capital alone³. This view implies what we may call a *pure mudaraba* model where the financier is assumed to provide the *entire* capital to an empty handed entrepreneur; the model fits well even today to small partnership businesses to undertake specific projects. But the modern economic scene is dominated by large corporations that have long eclipsed small proprietary businesses. Likewise, banks have almost completely replaced personal financing of the earlier era with institutional arrangements. What realistically fits in the present situations is the model of what we can term as *mixed mudaraba*, where the bank is an outside financier providing fund to running businesses on a profit sharing basis.

Siddiqui (2008) in his paper under reference provides a neat summary of the earlier literature on the point for us⁴. He seems to go with the view that the absence of rate of interest from the scene in the Islamic system of finance does not reduce the tools of monetary policy because the profit sharing rates (ratios) can serve as a replacement.

In contrast, Hasan (2009) had expressed the opinion that profit sharing ratio is apparently not a price for credit like the rate of interest and cannot, therefore, take its place in the central banks' arsenal of credit control.

To advocate universal banking for Muslim countries looks premature in view of their current levels of economic development and knowledge status⁵. Promotion of specialized interest free financial institutions like investment houses, unit trusts, refinance companies, housing societies, mortgage banks, cooperative societies and so on seems to be the answer. One may notice some movement in that direction but its being the consequence of a declared policy plank is yet to emerge. A blue print in each country suited to local conditions and needs has to be prepared.

Islamic banks and conventional banks involved in Islamic finance may be required to publish in their periodic financial statements profit rates the banks earn on their equity side by side the rates allowed on deposits to improve information and transparency. How free are the negotiations between banks and the depositors, especially the smaller ones, may also have to be looked into. The use of standard contract forms that the depositors have no option but to sign looks patently un-Islamic⁶.

5. Conclusions

Islamic banking must harmonize not only in form with the *Shari'ah* but also with its intention and spirit. The current practice of Islamic banking leaves much of concern on this score. A major issue is of credit creation and control which is vital for the future development of Islamic banking along the right course. Creation of credit money has become an imperative not only for smooth running of trade industry and commerce but for fiscal requirements as well.

It is easy to see that there can hardly be any Islamic objection to the act of credit money creation per se. How and in what quantities such money is generated is the crux of the issue.

The usual marketing kits are brochures, booklets and advertisements. In Islamic banking things that should be explained in brochures and booklets are like: Permission from depositors for bank to use their deposits for banking business.

Finally, one must take a long-run view of the matter when interest free financing must be the leader not the follower of conventional forms. This view demands consequential structural modifications in Islamic banking as it operates today. There is need to add more specialized long-term financial instruments and institutions to the existing ones in planned manner.

³ Hasan, Zubair, 2009, 'Islamic Banks: Profit sharing, equity, leverage lure and credit control', *Synposium on Islamic banking and Finance*, Melbourne University Australia (2009): pp. 1-18.

⁴ Siddiqui, Shamim Ahmad 2008, "An Evaluation of Research on Monetary Policy and Stability of the Islamic Economic System", The 7th International Conference in Islamic Economics 1-3 April, (Conference Papers) pp.235-270.

⁵ Hasan, Zubair (2008), op cit.

⁶ Hasan, Zubair (2009), op cit.

5.1 Suggestions on Monetary Policy

This provides a perspective on the future of our world and the economy. In the future, it can be understood that the most important instrument of monetary policy will be the reserve ratios to be applied to securities issued by banks.

When the time comes, the required reserve ratios to be applied to securities will be as important as the required reserve ratios to be applied to the minimum deposit. Decisions taken by the regulatory authorities in this direction will be carefully monitored and the required reserve ratio for securities issued as monetary policy instruments will be taken into consideration.

The fact that banks package the credits they produce and that these assets have an easy-to-change liquidity demand also leads to the emergence of the risk of moral danger on the banks.

At this point, the moral danger poses a similar effect to the abuse of deposit guarantees of banks. The ability of banks to secure loans that are easily generated by the banks out of balance sheet causes a weakened monitoring result in the credit allocation process. Since banks could easily transfer loans to investors in capital markets instead of tracking them on the balance sheet, they decrease the monitoring pressure on the loan and reduce the quality of the loans. As a matter of fact, the banks' accepting every loan request to securitize and including the lowest income group called as subprime, including the lowest level of (subprime) society, led to bankruptcy of such banks as Lehman Brothers, Fannie Mae, Freddie Mac and paved the way for global financial crisis.

It is also a risk source for loans to be repackaged over and over again and to establish a basis for financial assets called toxic derivative instruments. Based on these financial assets, the fact that the newly developed derivative instruments have not been issued and the financial markets are being offered increases the risk. Moreover, the fact that the biggest investor of these financial assets is the banks produces the result that the risk deriving from the balance sheet of the banks is re-entered into the balance sheet in a more destructive form. The main objective of the banks' taking financial assets out of balance sheet is profitability and access to new resources.

REFERENCES

- Al-Fadhil Ustadz Mohd Bakir Hj Mansor, "Things To Look For In Shariah Products Approval", Talent Development Programme-ISRA, 11-12 November 2009, Auditorium-INCEIF
- Bernanke, B. S., & Blinder, A. S. (1988). Is it money or credit, or both, or neither. *American Economic Review*, 78(2), 435-439.
- Carpenter, S., Demiralp, S., (2012) Money, Reserves, And The Transmission Of Monetary Policy: Does The Money Multiplier Exist?, *Journal Of Macroeconomics*, 34(1), 59-75.
- Hasan, Zubair 1985, "Determination of Profit and Loss Sharing Ratios in Interest-Free Business Finance", *Journal of Research in Islamic Economics*, Vol. 3. No.1, pp. 13-29.
- Hasan, Zubair 2008, "Credit creation and control: an unresolved issue in Islamic banking", *International Journal of Islamic and Middle Eastern Finance and Management*, Emerald Group Publishing, vol. 1(1), pages 69-81, April.
- Hasan, Zubair, 2009, "Islamic Banks: Profit sharing, equity, leverage lure and credit control", *Synposium on Islamic banking and Finance*, Melbourne University Australia, pp. 1-18.
- Hazen, T.L. (2012) "Securities Regulation Selected Statutes, Rules and Forms 2012 Ed", West, Eagan.
- Hoshi, Takeo 2006, "Creditor Rights and credit Creation by Banks in Transition Economies", Working paper, *Graduate School of International Relations and Pacific Studies University of California*, San Diego, NBER, and TCER.
- Johnston, R. B. (1981). *Theories of the growth of the Euro-currency market: A review of the Euro-currency deposit multiplier*. Bank for International Settlements, Monetary and Economic Department.
- Kumar, G., Leonard, P. A. (1998) Bank Balance-Sheet Management: An Alternative Multi-Objective Model, *Journal of the Operational Research Society*, 401-410.
- Lopreite, M. (2012). *The Endogenous Money Hypothesis And Securitization: The Euro Area Case (1999-2010)* (No. 2012-EP02). Department of Economics, Parma University (Italy).
- Mallett, J. (2009). The Infinite Loan Machine. An examination of the effect of loan securitization on the fractional reserve banking system. Presented in the annual meeting of American Finance Association
- Mishkin, F. (2000). çev. Şıklar, İ., Çakmak, A., Yavuz, S., *Finansal Piyasalar ve Kurumlar*, Bilim Teknik, İstanbul.
- Mitchener, K. J., Richardson, G., "Shadowy Banks And Financial Contagion During The Great Depression: A Retrospective On Friedman And Schwartz", **The American Economic Review**, 103(3), 73-78, 2013,
- Palmiter, R.A. (2008) *Securities Regulation Examples and Explanations 4th Ed*, Wolters Kluwer, New York.
- Schwarcz, S.L. (2002). *Structured Finance: A Guide to the Principles of Asset Securitization*, 3rd Edition, Practising Law Institute, New York.
- Siddiqi, M. N. 2006, "Islamic banking and Finance in Theory and Practice: A Survey of the State of the Art", *Islamic Economic Studies*, Vol. 13, No. 2, pp.1-48.
- Siddiqui, Shamim Ahmad 2008, "An Evaluation of Research on Monetary Policy and Stability of the Islamic Economic System", The 7th International Conference in Islamic Economics 1-3 April, (Conference Papers) pp.235-270.
- Ünsal, E. (2011). *İktisada Giriş*, 3.Baskı, İmaj, Ankara