# A VIEW ON PREVAILING ECONOMIC AND FINANCIAL SYSTEM: THE MONEY ASPECT

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## Abstract

In this paper we discuss the methodology by which money is created. The argument is presented in the light of modern monetary theorist that money comes in existence along with debt. This leads to the notion of loans create money and not the other way around. Majority of the money is created via fractional reserve banking system which arises as mere accounting entries. In which a small amount of initial base money generates a whole lot of broad money supply, in Pakistan's context the multiplier effect is of three times. Long run relationship between domestic debt and broad money supply is empirically tested, which resulted in co-integrated series. The historical context is also taken on which discusses the root of transformation in monetary aspect from the seventeenth century in England. Starting from the rise of goldsmith banking which prevailed due to two reasons; seizure of mints by Charles I and the civil war of 1640s. Further on, the increasing need of government financing led towards the invention of Bonds and the Bank of England, in which the whole benefit seems to divert towards its initiators.

***Keywords:*** fiat money, TD(total deposit), ID (initial deposit), ADF (augmented Dickey Fuller)

## Introduction

Money plays a vital role in forming an economy and a subsequent type of society, as it is the only thing which "embodies the interrelatedness and the uniqueness of all things. No longer will it be separate, in fact or in perception, from the natural matrix that underlies it. It reunites the long-sundered realms of human and nature; it is an extension of ecology that obeys all of its laws and bears all of its beauty"[4].

The prevailing money creation process has changed dramatically from its recent past. Around four centuries ago it was created as debt free commodity money, as a free coinage, regulated by government to assure its quality. Even the paper money of past

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4 Charles Eisenstein, *Sacred Economics: Money, Gift, and Society in the Age of Transition* (Berkeley, Calif.: Evolver Editions, 2011).

didn't embedded interest with it; the emperor used to issue it directly and debt free, e.g. in the reign of Hien Tsung (806-821), China[5].

This paper is a try to go through the tunnels of vague process of money creation; the subsequent parts present a literature survey on the government and banks money creation process. For clarifying the fractional reserve system a brief accounting methodology is undertaken. Monetary data in context to Pakistan is graphically and empirically analyzed and lastly the historical account on the paradigm shift for prevailing money system is presented.

**Literature Survey**

The money creation process in the prevailing time has significantly changed; currently the money is based on debt which requires even governments to take loan from central bank for its initial creation by issuing bonds or securities[6]. The national currencies of these times are non-intrinsic value, they are not backed by gold nor redeemable in it, they are fiat in nature[7]. Fiat money contains backing of government or any issuing body decree which tends to make it a legal tender[8]. Coupled with an institution, it shows a kind of coercion or acute canny without which it remains unacceptable by the society[9]. The fiat nature behind the conventional money assures its market acceptability and the money created through debt instruments keep in check the limited creation of elastic money. With no requirement of backing, an unlimited amount of money can be created, which can in turn cause runaway inflation, to offset this trend a debt based financial instrument is required such as a bond[10].

The total fiat money or money supply within an economy comprises of government and banks created currency and credit instruments, which functions as means of payment[11]. The aggregate money supply is divided into Reserve Money and Broad Money, they are also known as M0 and M2. The reserve money comprises of two parts coins and paper currency, the coins are debt free created by government and paper currency is created by central bank in exchange of treasury bills on behalf of the government – which are charged with interest, thus debt based[12] [13] [14]. Whereas the broad money comes in existence when banks forward loans to its customers, it is created through fractional

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5 Glyn Davies, *A History of Money: From Ancient Times to the Present Day*, 3d ed. (Cardiff: University of Wales Press, 2002), 181.

6 G. Edward Griffin, *The Creature from Jekyll Island: A Second Look On Federal Reserve*, 3d ed. (California: American Media, 1998), 183-207

7 Ahamed Kameel Mydin Meera, "Part I the Unattainableness of the Maqasid: Seigniorage of Fiat Money and the Maqasid Al-Shariah," *Humanomics* 22, no. 1 (2006): 18.

8 Ibid, 30, Note:2.

9 Davies, 258.

10 Martin Shubik, "The Theory of Money," *Cowles Foundation Discussion Paper No.1253* (2000): 10.

11 Ibid, 9.

12 T.R. Jain and O.P. Khanna, *Macro Economic Management* (Dehli: V.K. (India) Enterprise, 2006).

13 Ellen Hodgson Brown, *Web of Debt: The Shocking Truth About Our Money System and How We Can Break Free* (n.p.: Third Millennium Press, 2008).

14 Hans Schicht, "The Death of Banking and Macro Politics," *Gold-Eagle*, 2005, http://www.gold-eagle.com/editorials_05/schicht020305.html (accessed March 29, 2013).

reserve banking[15]. In Pakistan, the reserve money and broad money comprises of 30 percent and 70 percent respectively, SBP. Further on, within the reserve money, the coins comprise of 0.5 percent and paper currency comprises of 95.5 percent[16]. Thus it can be deduced that in Pakistan the total debt free money supply is of around 0.1 percent and on the contrary 99.9 percent of money supply is debt based. Meera[17] gives monetary aggregate statistics of sixty two countries and draws an average of only 34 percent of available state money M0 (hard currency and coins) to broad money, M2.

It can be observed that majority of the money is created by the banks through multiple deposit creation process or fractional reserve banking. The history of fractional reserve banking can be traced back to the seventeenth century goldsmith banking[18]. Others trace fractional reserve banking to as much back as 393 B.C.[19]. It is a process in which a deposit is made on safekeeping condition with a custodian – bank or safekeeping institution or goldsmith – that it will be returned on demand, making custodian liable to maintain a hundred percent reserve. But as the time passed less and less depositors returned to encash there deposit amount and preferred to use the receipt[20]. This tempted the goldsmiths to lend this money on interest; moreover ironically the goldsmiths started writing receipts directly instead of forwarding the money, as the receipts of deposits were acceptable in the market, thus creating money[21]. This leads to the illogicality of number of receipts circulating more than the number of money represented by it[22].

The above mentioned historical development meant that the goldsmith or banks were not loaning out from the deposits they receive, because if they did that then no extra money would have been created[23]. Banks are legally required to maintain a fraction of the deposit amount and legally allowed to lend the excess amount[24]. The upper limit for such expansion is the legal requirement of maintenance of specified amount of reserves[25]. Which means that an initial deposit of Rs.100,000 can theoretically support money creation of Rs.1,000,000 with a reserve requirement of 10 percent. The formula for multiple credit creation can be written as:

$$TD = (1 \div rr) \times ID$$

Where; TD = Total Deposit; rr = reserve requirement and ID = Initial Deposit.

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15 Stuart Berry et al., "Interpreting Movements in Broad Money," *Bank of England Quarterly Bulletin* no. 3 (2007): 376-88.

16 SBP, 2011. *SBP Annual Report - Statistical Supplement,* s.l.: State Bank of Pakistan, other issues.

17 Meera, 21.

18 Tarek El-Diwany, *The Problem with Interest*, 2nd ed. (London: Kreatoc Ltd, 2003).

19 Jesus Huerta De Soto, *Money, Bank Credit and Economic Cycle* (Madrid: Ludwig Von Mises Institute, 2009), 41.

20 El-Diwany, 36.

21 Ibid.

22 Griffin, 168.

23 Federal Reserve Bank of Chicago, *Modern Money Mechanics: a Workbook On Bank Reserves and Deposit Expansion* (Chicago: CreateSpace Independent Publishing Platform, 1994).

24 Federal Reserve Bank of New York, *I Bet You Thought* (Newyork: Public Information Department, 1977).

25 Federal Reserve Bank of Chicago , 4.

A total deposit is the reciprocal of reserve requirement times the initial deposit. The money creation process is possible because the banks work like a group in shape of one large bank, the credit of one bank is deposit for other, thus no change in total reserves, the money creation process can be activated via investments from banks or by extending loans[26].

Following the methodology of Smithin[27] we explain the money creation process and represent it in a balance sheet format (see appendix A). At start assuming, Person A makes a deposit of Rs.100,000 in the bank and assuming that this is the only money supply available in the economy in form of printed notes i.e. starting the economy from zero[28]. The balance sheet of bank will show a debit entry of cash and a subsequent entry of liability of deposit on credit side. With an initial deposit of Rs.100,000 bank is legally required to keep only a fraction of this amount with itself as reserve and loan out the remaining. By assuming 10 percent reserve requirement the bank can keep Rs.10,000 in reserve and extend a loan of upto Rs.90,000. Suppose, Person X visit's the bank to take a loan for building a room in his house, he signs the contract of IOU with bank and bank transfers Rs.90,000 in Person X account – after opening the account in the name of person X. The balance sheet will show an increase in liability of deposit on credit side as the loan amount is deposited in Person X account. The loan forwarded by the bank is not interest free; it yields an interest income for the bank – here assuming the June 2011 discount rate set by State Bank of Pakistan – of 14 percent. Subsequently a balancing increase will reflect as an asset; account receivable on the debit side. Suppose after receiving loan from the bank Person X hire's a constructor for building the room and pays the constructor in form of cheque. The constructor will deposit the cheque in the bank, thus a transfer will be recorded in books of the bank from Person X towards Constructor. Also according to Federal Reserve Bank of New York[29] whenever a loan is forwarded, the banks create cheque book money, by simply adding new money in their account in exchange for borrowers IOU, money is simply a book keeping entry.

As the contractor deposits the cheque in the bank, there is a arrival of new deposit, enabling the bank to keep a fraction of the deposit in reserve and loan out the remaining – Rs.9,000 and Rs.81,000. Imagine Person Y is in dire need for a 125cc motor cycle; he approaches the bank and takes out a loan while signing an IOU. The bank transfers the money in Person Y account. Person Y purchases a motor cycle and pays the Dealer of motor cycle with the cheque. The dealer deposits that cheque at the bank. The effect on balance sheet will be an increase in liability side as a new loan by Person Y is recorded in the books and a subsequent increase in assets on debit side. After depositing cheque by the Dealer of motor cycle, the accounts on credit side will adjust, showing a transfer of money from Person Y to Dealer. Here again, the deposit made by the Dealer legally permits the bank to keep a fraction of deposit amount and lend the excess i.e. Rs.8,100

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[26] Ibid, 8.

[27] John Smithin, "Credit Creation, Monetary Circuit and the Formal Validity of Money," *Draft* (2011b)., http://www.econ.yorku.ca/~jsmithin/Formal%20Validity%20of%20Money_Draft%20of%20October%202011.pdf (accessed March 29, 2013).

[28] Who created the initial printed money and the discussion of default scenario is beyond the scope of this paper, it will be taken up separately.

[29] Federal Reserve Bank of New York, 5.

and Rs.72,900. Imagine Person Z, in need for investment in small business of poultry takes out loan from the bank, again going through the sequential procedure of IOU and rest. Person Z pays to the Supplier for his poultry goods purchase with cheque. The cheque founds it way into the banking system thus again allowing the bank to make loans on it while keeping a fraction of it under fractional reserve banking. Here we have shown a money multiplier of three.

The total on both sides show a balance of Rs.378,046, the initial money supply was of Rs.100,000 which have now increased to 343,900 by undergoing the factional reserve banking system. The banks created Rs.243,900 in this process and earned interest on it.

On a side note, this leads to the query of 'deposits creates loans' or 'loans create deposits'[30]. The causal link of money in conventional terms seems to be as 'deposits create loans'. But if it was to be true then the change in reserve money would have preceded the change in broad money, because then only banks could have loan out. And taking up the study of, Kydland and Prescott (1990) – the 2004 Nobel Prize winners – Keen[31] puts forth that the broad money changes have preceded the changes in reserve money, the process works in reverse.

**Graphical and Empirical Analysis**

For analyzing the money aspect in the economy, Pakistan monetary statistics are represented here. Data has been collected from State Bank of Pakistan[32] on monthly basis from June 1977 to June 2012, making 421 values. Figure 1 shows the reserve money (M0), broad money supply (M2) and the domestic debt outstanding, the values are in million Rs. From figure 1 the relation of money with debt is quite evident. The money creation process has gained some pace in Pakistan and currently it is around 3.50 times, which means that Rs.100,000 in Pakistan are generating Rs.350,000. This analysis is also near to our hypothetical example as discussed in the previous section.

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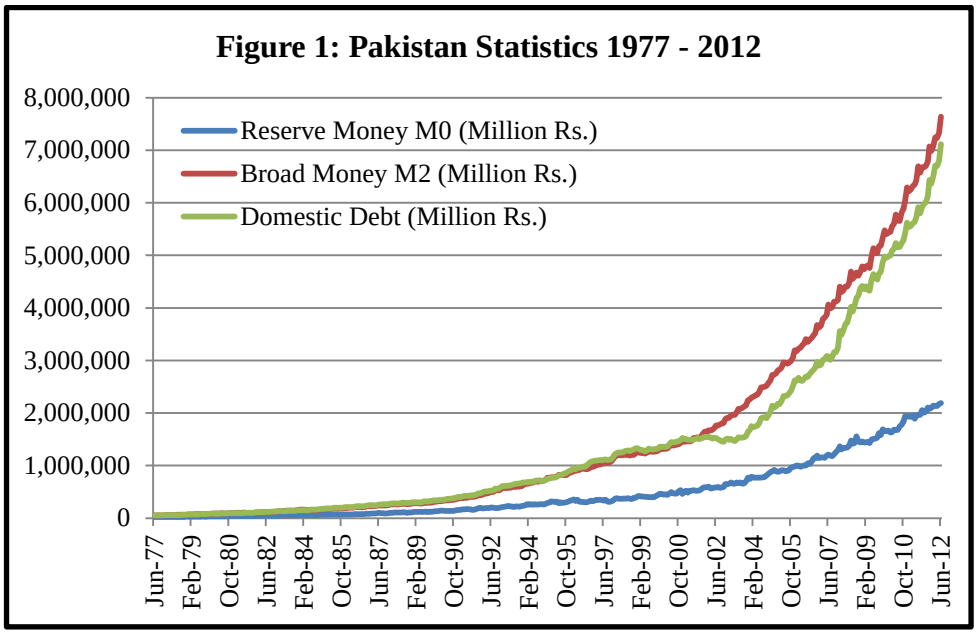
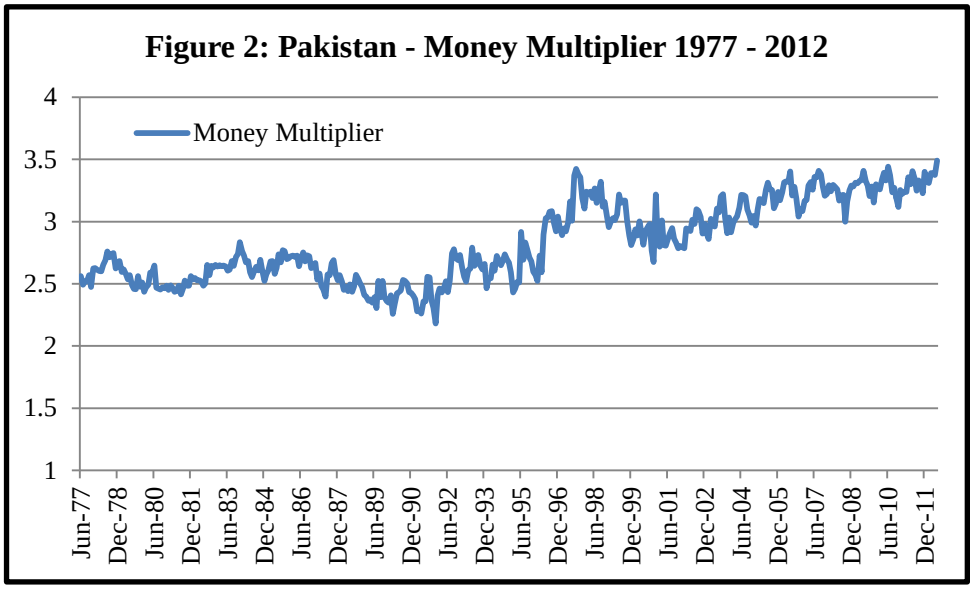
30 Steve Keen, "The Mysterious Money Machine," Centre for Policy Development, entry posted August 03, 2006, http://cpd.org.au/2006/08/the-mysterious-money-machine/ (accessed March 29, 2013).

31 Ibid.

32 Various Monthly Statistical Bulletins and Annual Reports.




To check the long run association between domestic debt and money we utilize sophisticated econometric techniques: Unit Root Testing and Johansen Cointegrating Testing. The benefit of cointegration testing is that it helps in identifying a stationary and meaningful relationship between variables even if the variables are non-stationary

individually. Domestic Debt and Broad Money Supply are tested for existence of unit root, using Augmented Dickey Fuller (ADF), including trend and constant, and keeping 12 lags (as the data is of monthly frequency), the oxmetrics output is given in table 1.

**Table 1: Unit Root Test Results for DD and M2**

| | DD (Domestic Debt) | | M2 (Broad Money) | |
|---|---|---|---|---|
| **Lag** | **t-adf** | **AIC** | **t-adf** | **AIC** |
| 12 | 3.57 | 20.73 | 5.162 | 20.21 |
| 11 | 4.973 | 20.81 | 7.493 | 20.29 |
| 10 | 4.74 | 20.81 | 7.159 | 20.30 |
| 9 | 4.158 | 20.83 | 5.952 | 20.34 |
| 8 | 4.179 | 20.83 | 5.657 | 20.35 |
| 7 | 3.98 | 20.83 | 5.343 | 20.35 |
| 6 | 3.853 | 20.82 | 5.625 | 20.34 |
| 5 | 7.743 | 21.18 | 14.61 | 20.85 |
| 4 | 7.078 | 21.20 | 9.226 | 21.14 |
| 3 | 6.208 | 21.22 | 7.519 | 21.21 |
| 2 | 7.874 | 21.24 | 8.694 | 21.20 |
| 1 | 6.631 | 21.29 | 6.214 | 21.34 |
| 0 | 6.072 | 21.30 | 4.683 | 21.43 |
| 5%=-3.42 1%=-3.98 | | | | |

The result shows existence of unit root in both the series, thus the series are non-stationary. For any kind of meaningful long run associationship between the variables, both the series must be co-integrated. By using Johansen Cointegration Testing and selecting appropriate lags according to AIC criteria the result shows the existence of cointegration, thus we can safely argue that domestic debt and broad money supply are cointegrated in the long run, see table 2.

| Table 2: Cointegration Testing | | |
|---|---|---|
| H0: rank<= | Trace test | [ Prob] |
| 0 | 113.02 | [0.000] ** |
| 1 | 0.66901 | [0.413] |

## Historical Context

The major developments in the concept of money and the financial world as we see now can be traced back to Britain in a time period of 1640 onwards[33]. The most interesting reign is of Charles I (1625-1642) in which he minted doubled quantity of coins as compared to Elizabeth's reign of forty five years[34]. The significant financial developments of these times were; the creation of credit channels chiefly from London by usage of notes, bills and cheques for the purpose of expanding the private debt, introduction of the concept of national debt which was way above the concept of royal and personal obligation taken by kings for meeting their expenses, the growth of internal and external bills to be used in foreign and domestic trade respectively, giving rise to stock exchanges and foreign exchanges, role of insurance concept for marine trade, life and fire, and recognition of state lotteries and annuities (bonds)[35].

Starting from Charles I as he always seems to be short of money. He tried many methods to overcome his financing issues, among many, one of them was a successful peace treaty which secured an abundant supply of silver from Spain to England, it was signed to overcome the issue of war with Spain which started in 1625[36] [37]. He twice tried to debase the coinage but was refuted both times by the parliament, in 1626 and 1640[38] [39]. Apparently he imposed a very unpopular tax known as 'Ship Money' without the consent of the parliament to cover the expenses of construction of war ships to be used in defending the coastal area[40] [41]. Lastly to overcome his financial shortages he took the step of seizing the mints in 1640 and took some of its minted coins for repaying his

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33 Davies, 238.

34 Ibid, 240.

35 Ibid, 238.

36 Also "a secret treaty for the partition of Holland between England and Spain, as the price of the restoration of the Palatinate (Gardiner, History of England, vii. 176; Clarendon State Papers, i. 49)." Charles Harding Firth, Dictionary of National Biography, 1885-1900 (1887), 294, http://en.wikisource.org/wiki/Page:Dictionary_of_National_Biography_volume_12.djvu/300 (accessed September 11, 2012).

37 Harland Taylor, "Trade, Neutrality, and the 'English Road', 1630-1648," *The Economic History Review* 25, no. 2 (1972): 236-60, p.241.

38 Davies, 240.

39 Scott Cohen, "Counterfeiting and the Economics of Kingship in Milton's Eikonoklastes," *Studies in English Literature 1500-1900* 50, no. 1 (2010): 147-74, p.152.

40 Davies, 211-12.

41 Henrik Langelüddecke, "I Finde All Men Andmy Officers All Soe Unwilling: The Collection of Ship Money, 1635-1640," *The Journal of British Studies* 46, no. 3 (2007): 509-42.

debts by assuring the creditors (merchants and goldsmiths) of an 8 percent interest rate[42] [43]. These circumstances were among the other causes which led to the English Civil War of 1642.

Moving forward, according to Davies[44] the goldsmiths even before 1640s were already engaged in banking functions, doing it on a part time basis or as a by-product arising from different trading activities. It included money transfer from one town to other, foreign coins exchange, dealing in discounting bills of exchange and government tallies. The safe keeping, accepting deposit of money and loaning it were among the functions of goldsmiths but it was not a general practice before the civil war[45]. London was the key place for development of financial intermediaries as it was a hub for government, domestic trade and foreign trade. The first stage of transformation of goldsmiths to bankers was majorly due to their involvement in above mentioned arena via dealing in foreign and domestic coins. Thus there arise a clear difference between working goldsmiths and exchanging goldsmiths, and it was the latter one which converted into a formal banking methodology[46]. On the other hand the worsening condition of England due to war, plague and fire led to usage of goldsmith's vaults as a secured place for deposits – events such as seizure of mint in 1640 and civil war in 1642[47]. This banking type product brought new business for goldsmiths who were facing a literally ceased business of theirs of ordinary gold and silver making products, the business was that much profitable that to draw more deposits they starting paying out interest on time deposits[48]. On making a deposit, goldsmiths used to issue a receipt, initially it was in the name of the depositor but after sometime it became a negotiable instrument i.e. giving the coin to that person who possesses the receipt. According to Withers[49] the goldsmith bankers started giving receipts to not only those who have deposited there coins but also to those who came to borrow from them, thus founding the modern banking – the foundation of fractional reserve banking – this position was reached by 1660s[50].

England's seventeenth century saw yet another war, this time with Dutch Republic in 1672. To finance this war Charles II asked for loan from the goldsmiths, but they refused to give any as they were already fully loaned up[51]. In reply to their refusal Charles II ordered a 'stop of exchequer' in 1672 which meant stoppage of payment, principal and interest to the goldsmith previous credits, initially for one year but later

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42 Davies, 241.

43 Raghuram G. Rajan, "The Past and Future of Commercial Banking Viewed through an Incomplete Contract Lens," *Journal of Money, Credit and Banking* 30, no. 2 (1998): 524-50, p.531.

44 Davies, 249.

45 Rajan, 531.

46 Davies, 250.

47 Rajan, 531.

48 Richard D. Richards, *The Early History of Deposit Banking in England* (London: King & Sons, 1929).

49 Hartley Withers, *The Meaning of Money,* 2nd ed. (London: Smith, Elder & Co, 1909), 24.

50 Davies, 252.

51 J. Keith Horsefield, "The 'Stop of the Exchequer' Revisited," *The Economic History Review* 35, no. 4 (1982): 511-28.

indefinitely[52]. This made a horrific impact on the financial world and made many renowned goldsmiths bankrupt, thus bringing back the memories of seizure of mint[53] [54].

On the other side the developments since 1640s caused the intellectuals and businessmen to search a way out for covering governmental finance and its pay back guarantee to private sector, in a kind of public bank, this endeavor brought in front nearly hundred proposals out of which only two got successful – Bonds and Bank of England[55]. By 1690s, England faced yet another war, this time with France, Louis XIV and yet again financial constraints started pressing on.

The fundamental change in the political control over financial issues was the key for churning a new system. The requirement for long term loans at some reasonable conditions couldn't be fulfilled until the monarchy was ruled over by the parliament, so that the royal credit becomes the parliament guaranteed loans, it was the need of permanent institution rather a mortal monarch[56]. The process of transformation from monarch personal debt to a higher level of parliament debt or 'national debt' took thirty years – from 1660s to 1690s – it was the passage of 'Tontine Act' which marks the origin of national debt in 1692-93[57]. In its original form tontine had many variations, one, in which money was raised from subscribers and the increasing return was guaranteed for the lifetime, as the number of subscribers' decline – longest survivor[58]. The second alternative was a simple 14 percent for life, it was successful. The third alternative was a tax-free annuity; these three alternatives aggregately raised a sum of £1 million[59]. Fourth alternative was seen after passage of Annuity Act in 1694, in which the subscriber was allowed to nominate within limits a beneficiary – which usually turned out to be the youngest member of the family. In the same year of 1694 Million or Lottery Act was passed, that gave a return of 10 percent and an attraction of sharing in the £40,000 of prize each year. The logic behind the annuity was that the government could borrow for a long term without ever bothering for repaying the principle amount, this logic was also behind the scheme of Bank of England[60].

The increasing financial needs for lengthy wars compelled government to search for more avenues for borrowing; the need for a long-term borrowing institution was desperate. Accordingly the Bank of England was created, it was a joint venture between government and private sector, one was desperately short of finance and the other positive enough to run the bank profitably, it was an arrangement of permanent debt[61]. It was conceived that if parliament would take responsibility of repaying the loan, then it would have to impose heavy taxation on future generations – even if they would be

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52 Davies, 255.
53 Ibid., 254.
54 Horsefield.
55 Davies, 255.
56 Ibid., 264.
57 Ibid, 263-264.
58 David R. Weir, "Tontines, Public Finance, and Revolution in France and England, 1688-1789," *The Journal of Economic History* 49, no. 1 (1989): 95-124
59 Davies, 264.
60 Ibid, 264.
61 Harold Cox, "The Public Debt of Great Britain," *The North American Review* (1901): 355-86.

overburdened at that time. On the other hand if an arrangement could be made in such a way that the parliament takes on a permanent loan in which the principle in never intended to be repaid, then the parliament will have to levy a tax equivalent to the interest amount or service charges[62]. By the 'Ways and Means Act'[63] of 1694 the Bank of England was established. The act clearly mentions the purpose of Bank as to provide financing for the current war by making a permanent loan. The amount to be loaned was £1,500,000, which had to come basically from two sources: £300,000 from annuities and the major part of £1.2 million from capital subscription of the Bank[64]. Davies[65] takes it a bit deeper as, "in return the Bank was to be paid 8 per cent interest plus an annual management fee of £4,000. Thus for just £100,000 a year, and some vague privileges to a bank, and with no capital repayment burden to worry about, the government received £1,200,000 almost immediately." Accordingly it could issue bank notes equivalent to the amount of government debt[66]. Bank of England also received a string of privileges when it agreed to purchase the problematic tallies of government in 1697, which were being traded at 40 percent discount and some became virtually undiscountable. The privileges were, the death penalty was prescribed for forging the bank notes, tax exemption on bank properties, renewed charter until 1711 and lastly no other bank could legally be established during its existence[67]. Further on, the initiator and initial director of Bank of England, William Patterson boasted that the bank benefits off the interest on the money which it created out of nothing[68 69]). According to Griffin[70] the pubic was deceived in believing that the bank is loaning out to government, in reality the bank was creating money out of nothing, but on government behalf, had the government printed money by its own self, it would had been never accepted by the public, thus never coming in this mystification.

## Conclusion

In this paper we discussed the methodology by which money is created. The argument was presented in the light of modern monetary theorist that money comes in existence along with debt. This leads to the notion of loans create money and not the other way around. Majority of the money is created via fractional reserve banking system which arises as mere accounting entries. In which a small amount of initial base money generates a whole lot of broad money supply. Accordingly a hypothetical case was discussed which elaborated the process, showing a money creation of three times the initial money supply – in line with Pakistan's current money multiplier. Empirically we

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62 Davies, 258.

63 This act is also known as Tonnage Act.

64 According to Richard (1929), at the time when loan was made only £720,000 was invested, which means that bank loaned 66% more than it had on hand, (Griffin, 1998, p. 177).

65 Davies, 260.

66 J. Lawrence Broz and Richard S. Grossman, "Paying for Privilege: The Political Economy of Bank of England Charters, 1694-1844," *Explorations in Economic History* 41, no. 1 (2004): 48-72.

67 Davies, 263.

68 Michael Perelman "The Neglected Economics of Trust. the Bentham Paradox and Its Implications," *American Journal of Economics and Sociology* 57, no. 4 (1998): 381-89, p.381.

69 Guido Giacomo Preparata, "Major Douglas in the Witness Box: Sparse Reflections On the Heresies of Social Credit," *American Review of Political Economy* 2, no. 1 (2004): 85-150, p.86.

70 Griffin, 177.

test the long run relationship between domestic debt and broad money supply, which also resulted in cointegrated series. The root of transformation in monetary aspect was traced from the seventeenth century in England. Starting from the rise of goldsmith banking which prevailed due to two reasons; seizure of mints by Charles I and the civil war of 1640s. Further on, the increasing need of government financing led towards the invention of Bonds and the Bank of England, in which the whole benefit seems to divert towards its initiators.

## Appendix A

| Balance Sheet | | | | | |
|---|---|---|---|---|---|
| Debit | | | Credit | | |
| Cash | | 100,000 | Deposit – A | 100,000 | |
| A/c Receivable – X | 90,000 | | Deposit – X | 0 | |
| A/c Receivable – Y | 81,000 | | Deposit – C | 90,000 | |
| A/c Receivable – Z | 72,900 | | Deposit – Y | 0 | |
| Total A/c Receivable | | 243,900 | Deposit – D | 81,000 | |
| Interest Receivable – X | 12,600 | | Deposit – Z | 0 | |
| Interest Receivable – Y | 11,340 | | Deposit – S | 72,900 | |
| Interest Receivable – Z | 10,206 | | Total Liability (Deposits) | | 343,900 |
| Total Interest Receivable | | 34,146 | Interest Income – X | 12,600 | |
| | | | Interest Income – Y | 11,340 | |
| | | | Interest Income – Z | 10,206 | |
| | | | Total Interest Income | | 34,146 |
| Total | | 378,046 | Total | | 378,046 |