The Chicago Plan from the Lenses of Islamic Finance: Implications for Financial Stability and Indebtedness

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Abstract

As a response to the Great Depression of 1930s, some prominent US economists came up with the "Chicago Plan", which proposed full reserve banking backed by government-issued money and separation of the monetary and credit functions of the banking system as important pre-conditions for financial stability. The idea behind the Chicago Plan can be confidently claimed as a conventional version of the Islamic precepts of risk-sharing, deposits for safe-keeping and prohibition of debt financing. What makes the Chicago Plan relevant and important for today is that the latest Global Crisis once more underlined the simple fact that "this time is not different" so policy-making needs fresh and even radical reconsideration of the theory and policies. The Chicago Plan is indeed such a radical look into the gist of the problem. Moreover, the Chicago Plan and the discussions around it provide an invaluable benchmark to understand the great potential of the Islamic finance on financial stability. This paper examines theoretical underpinnings of the Chicago Plan; its relevance to Islamic finance and financial stability. Following the theoretical part, the modus operandi of the Chicago Plan is illustrated by using sectoral balance sheets of the main sectors.

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Introduction

The world has been in an ongoing crisis since 2008. There is a huge literature on the causes of the crisis and another huge literature for the prospective solutions to prevent the next coming crisis. Basically, loose monetary policy through record low interest rates from early 2000s, financialization, global imbalances, inadequate supervision and regulation among others are considered as the main culprits of the crisis in the literature. Mainstream solution for the crisis is more and more regulation but none of the solutions and policy implementations has seemingly worked as the economies are ended up with high levels of public debt, dwarfed growth and financial fragility in the end of the day. Indeed, financial/economic crises have been with us over the centuries with almost identical causes. Against similarity of the causes and the measures, we are still regularly trapping into the crises. So, the history should tell us, without a real paradigm shift "this time will never be different". But to ignite a paradigm shift, the real and deeper causes of the crises must be defined well. As stated by Diamond (2008), Reinhart and Rogoff (2011), Cochrane (2014) and many others, the ultimate underlying cause of most of crises is debt, mostly short-run debt. Accordingly purging the short-term debt from the system and basing regulation on its remaining would be the more real solution[1].

While the crises have usually overwhelming effects for the economies, they also spur novel and blockbuster intellectual ideas in economics because the crises are the opportunities for the intellectual minds to understand the deficiencies of the ongoing system and to think out better ones. For instance, The Great Depression of 1929-30 gave way to Keynes and his ideas. So in the current crisis, the literature needs to conceive of new solutions given the fundamental cause of the crises: the debt. Another way for a workable solution is to look at the history in which many great ideas against the crises have emerged. As many great economists of our time in both of the conventional and Islamic economy literatures insist that the causes of the current crisis and the Great Depression of 1929-30 are exactly the same[2], this paper focus on a very prominent reform proposal as a paradigm shift which emerged in the turmoil period after the Great Depression. In the crisis atmosphere of 1930s, similar to today's gloomy environment, some prominent US economists came up with a proposal that is known as the "Chicago Plan". This plan can concisely be summarized as the separation of the monetary and credit functions of the banking system, *"first by requiring 100% backing of deposits by government-issued money, and second by ensuring that the financing of new credit can only take place through*

[1] Cochrane (2014): p.2
[2] For instance, Allais (1948), Mirakhor (2012), Reinhart and Rogoff (2011), and Reinhart and Rogoff (2013).

earnings that have been retained in the form of government-issued money, or through the borrowing of existing government-issued money from non-banks, but not through the creation of new deposit money, ex nihilo, by financial institutions."[3]

If we go further back in the history, the most effective preventive measures for and solutions to the crises that the world has been experiencing for the last couple of centuries comes from the precepts of Islamic economic system: Prohibition of interest, 100% reserve system, absolute separation of deposit banking only for safekeeping and equity-based investment banking and so on. What is deserves close attention and have propelled the author to write this paper is that both of the Chicago Plan, which is maybe one of the most effective proposals against the crises, and Islamic precepts of banking and finance almost entirely overlap. Hence, the conventional literature of the financial crises and contemporary Islamic economics/finance can benefit from each other in devising effective measures against the crises.

The paper is structured as follows: Section 2 gives a succinct evaluation of the current (fractional reserve) system and justification for the 100% reserve system. Section 3 gives a comprehensive explanation of the Chicago Plan by looking at its historical evaluation, modus operandi and potential problems during the transition period. Section 4 looks at the Chicago Plan from lens of Islamic economics. Then Section 5 concludes.

1. From the Fractional to 100% Reserve System: A Justification

Why the Chicago Plan is a viable and even a superior alternative to the current monetary system lies in the certain weaknesses of the fractional reserve system in which the banking system has power to create (terminate) credit from nothing, without any real background needed to support this credit creation (termination). This section gives a concise evaluation of the fractional reserve system and its intimate relationship with financial crises and debt accumulation. Then an overview of the 100% reserve system is given as an alternative system to the current one.

1.1. Money Creation, Debt and Crises in the Fractional Reserve System

In the standard textbook model, starting point of the money creation is the central bank, which changes its monetary base through changes in reserves. Increase in the monetary base (let's say through an open market operation by the central bank) also increases reserves of the banking sector. If the banking sector doesn't want to hold excess reserves, then they want to give more loans to get rid of their excess reserves. Each new loan account produces an equivalent deposit account. As loans are made, additional deposits are

[3] Benes & Kumhof, (2012). p. 4

created as loans are re-deposited within the banking system. In the end of the process, deposits are multiplied by the same amount as given by money multiplier. Because the money supply is the sum of deposits and cash balances, the money supply is also increased by the same amount as the change in the deposits. This is the money supply increase coming from the liability side (deposits) of the banking sector. Money creation in such a system is a function of change in the base money by the central bank and money multiplier, which depends on required reserve ratio (central bank decision), currency ratio (non-banking decision), excess reserve ratio (banking decision) and other market variables[4]. So, in such a textbook world, the banking sector has a quite passive role in the money creation process (Phillips, 1992).

In the real world, the money and credit creation processes, multipliers and transmission mechanisms are quite different from this textbook world. There are two significant differences with respect to the role of the banking sector in money creation process. Firstly, the banking sector is not simply intermediary by canalizing savings to loans. Indeed, bank lending gives rise to deposits and money creation; not the vice versa. Secondly, the money multiplier is not something like explained in the textbooks. While the money supplied is a function of the monetary policy of the central bank, the ultimate effects and the output almost entirely depend on the banking sectors' decisions, competitiveness and regulations on the sector. Moreover, in the modern economy the bulk of the money supplied is composed of the bank deposits not the money in circulation. For instance, around only 8% of the money supply (M2) for Turkey is composed of the money in circulation, the rest is the bank deposits[5].

Regarding the first difference that the banking sector is not simply an intermediary that transfers the savings into the loans, indeed, the mechanism does not run from the savings-deposits-loans but from the loans to the deposits[6]. In the money creation process, the bank first decides whether to give a loan to the customer considering the ongoing interest rate in the economy (here the central bank takes an important role), economic conditions, opportunity cost of holding other financial assets, sector-wide competition and so on. If the bank decides on giving credit to the customer, normally it does not give the credit to the customer in the form of money. Instead, an equivalent deposit account is credited to the customer in the balance sheet of the same bank or another one. As the deposits are the bulk of the money supply definition, money is created in the economy (equal to the credit creation). This process is called by Tobin (1963) as *"fountain pen*

[4] Mishkin (2004): p. 333-411
[5] Central Bank of Turkey, EDDS, Monthly Statistics
[6] McLeay, Radla &Thomas (2014): p.16

money– money created by the stroke of the bank president's pen when he approves a loan and credits the proceeds to the borrowing's checking account"[7]. In this process, while the money is created, there is no change in the central bank balance sheet or base money. In such a process, there is almost no room for the savings because the banking system does not need savings to give credit to the non-banking sector. It can be even argued that savings may negatively affect the money creation process because 1 unit of more saving means 1 marginal propensity to save unit of less expenditure and economic activity. If we assume the deposits are a function of the economic activity, deposit transactions are expected to decline proportional to the savings[8].

Another difference between the real and the textbook worlds is that the money multiplier is not under the full control of the central bank. As explained in the previous paragraphs, the starting point in the textbook world is the required reserves, with which the multiplier is interacted to get the money supply in the economy. On the other hand, in the modern world the reserves are the residual item of the money creation process. This is also confirmed by the fact that the most important tool for the central banks is not quantity of the reserves or the money but the interest rates. In the real mechanism, the banking sector looks for the profitable business, which is indirectly dependent on the interest rate decision on the central bank, and then releases loans and the loans determine the amount of the deposits. These deposits in turn decide on how much reserve to be kept in the central bank.

Apart from dominant power of the banking system in the money creation process, every unit of money created introduces an equal amount of debt into the system. This fact is also confirmed by the fact that money supply partakes in the liability side of a central bank, not under the equity of the balance sheet. So the government cannot increase the money supply to stimulate economic growth during downturns without increasing the level of debt.

The fractional reserve system is also crisis-prone. First reason, as is touched above, is that the money creation process introduces debt into the system and financial crises always start from indebtedness. This reality, within the mechanics of the financial crises, is well expounded by Reinhart and Rogoff (2011) as follows:

> *"First, private debt surges-fueled by both domestic banking credit growth and external borrowing are a recurring antecedent to domestic banking crises; governments quite often contribute to this stage of the borrowing*

[7] Tobin, (1963), p.408
[8] McLeay, Radla &Thomas (2014)

> *boom. Second, banking crises often precede or accompany sovereign debt crises. Third, public borrowing accelerates markedly and systematically ahead of a sovereign debt crisis; the government often has "hidden debts" that far exceed the better documented levels of external debt…during the final stages of the private and public borrowing frenzy on the eve of banking and debt crises and bursts of hyperinflation, the composition of debt shifts distinctly toward short-term maturities…"*[9].

Secondly, even we assume that the debt creation is always under control, the conventional banking system is inherently unstable[10] even in the absence of the central bank. The presence of a central bank also does not preclude this instability. Introduction of the central bank can even deteriorate the situation by their interest rate policy, financing of fiscal deficits and quantitative measures to affect demand and supply[11]. Moreover, when money is created from nothing relative to the savings available in the economy, fewer real goods and savings are available in the economy. Indeed, *"It is not the expansion of credit that leads to economic crises but the expansion of credit without real savings to support it. This is how central banks and monetary policy can be the cause of financial instability. Historically, while rapid credit creation has not been a sufficient condition for financial instability and crisis, it has been a necessary condition."*[12]

The financial sector's role is defined as to promote better risk sharing by Sufi (2015) who suggests that the key problem with debt is its inflexibility when the economy collapses. In this conventional system, losses are shared unequally, with high marginal propensity to consume debtors experiencing the largest losses. The reduction in consumer spending by debtors overwhelms the economy, and monetary policy is poorly positioned to clean up afterward. The long-run solution must be institutional changes that stop encouraging the use of inflexible debt, and instead promote more contingent contracting. More equity-like financing for banks and households would help cushion the real economy when disaster strikes.

One of the pro of the plan is Zaman (2015) who argues that the current financial system leaves the creation of money to the private sector banks and financial institutions instead of governmental institutions. He claims that the government is not in control of the money supply, and instead the private banks control money. Moreover, he criticizes *"wealth creation*" by finance that speculation leads to wealth destroying activity as it takes away from real productive activities, and provides excessive rewards to financiers and speculators. Therefore it is necessary to switch to a system of

[9] Reinhart and Rogoff. (2011)
[10] Minsky (1986 and 1992)
[11] Askari, Iqbal, Krichene &Mirakhor (2010): p.31
[12] Askari, Iqbal, Krichene &Mirakhor (2010): p.42

sovereign money, where the state has the sole right to create money. He tries to extend the Iceland plan with introducing a theoretic model for an interest free economic system, in which the power of private banks to create credit would be taken, and the specific role will be given only to the state to issue money.

1.2. Full Reserve Banking

Since the Chicago Plan is one of the four variations of the full reserve system in the current literature, delving into the description, main features and mechanics of full reserve system will be a direct and comprehensive introduction to the Chicago Plan.

Basically, the full reserve (or 100% reserve) system can be defined as centralized money creation in which banks cannot alter the money stock so payment system and credit creation processes are completely separated. As it was expounded in the previous section, once the payment and the credit mechanisms are consolidated (fractional reserve system), the banking sector can change the money stock by its credit creation ability. This separation is secured by full backing (100% reserve) of the current accounts. This system then transfers the prerogative of money creation from the commercial banks to the public monetary institution[13]. Full reserve requirement also gives rise to impossibility of using the current accounts for financing loans so that the loans have to be financed by investment accounts of the savers.

The most important requirement for the system is to strictly keep the 100% reserve ratio. Any deviation from this requirement may result in collapse of the entire full reserve system because (i) all the benefits of the full reserve system come into existence thanks to the separation of the payments and credit functions of the banking system[14]. Without 100% backed deposits, the banking system can still continue to create credit from nothing. Indeed, the 100% rule is a kind of knife-edge situation with no intermediate possibility to achieve the stability. (ii) less than 100% backing of the deposits would create volatility and loss of stability because it is still a fractional reserve system and the central bank still has to use both of the interest rate and the money stock[15]. Need for simultaneous control of the two different policy option would be resulted in less policy effectiveness and volatility. (iii) the lobbies can make pressure for even milder reserve requirements over time, this would open the gate for further compromises between the policy-makers and the banking sector by diluting the goal of the system[16].

[13] Dixhoorn. (2013): p. 2
[14] Dixhoorn. (2013): p. 6
[15] Benes & Kumhof (2012): p. 21
[16] Dixhoorn. (2013): p. 6

Another disputable issue regarding the 100% reserve system is which institution can supply the money and how the amount of money needed by the economy can be determined without involvement of the banking sector. The best way for the monetary policy should still be an independent monetary authority, such as the central bank. The authority then regularly can create money given a monetary growth rule in line with the inflation expectations. As the authority determines the quantity (money supply) but not the price of the money (interest rates), a money growth rule would be much more effective. To avoid a credit crunch, the authority may also lend funds to banks beyond money saved by the general public. Commercial banks can still undertake maturity and risk transformations, and match different saving and loan sizes. However, creditors more directly bear part of the investment risk[17].

Current literature on the full reserve banking system revolves around four variants of the system, namely, the Chicago Plan, Positive Money, Narrow Banking and Limited Purpose Banking[18]. Regarding the Chicago Plan, it is sufficient here just to mention that the distinguishing feature of the Plan is separation of the banking system and a large scale debt conversion (a much more detailed section is allotted to the Chicago Plan). The Positive Money proposal by Jackson and Dyson (2012) asserts that the banking reform includes elimination of old accounts to create the new ones in the central bank within a gradual plan of transition. In the Narrow Banking proposal by Kay (2009) all of the deposit guarantees are removed and this opens the way for more risk-return related banking activities. In the gradual process of the transition, the banking sector is obliged to hold safe assets which are exactly equal to the amount of the deposits. Pros and cons of the narrow banking is also discussed in Kobayakawa and Nakamura (2000) in detail. The last variation of the full reserve system is Limited Purpose Banking and discussed by Kotlikoff (2010) and Chamley et al (2012). The Limited Purpose Banking plan is more comprehensive than other full reserve proposals because, according to Kotlikoff (2010), the financial sector has capacity to circumvent the 100% reserve requirement. The solution is to transform all of the financial intermediaries into mutual funds and this transformation ensures that the banking system works just as an intermediary.

2. The Chicago Plan: A Closer Look at the 100% Reserve System

2.1. The Chicago Plan in Retrospect

The Chicago Plan, as a very robust full reserve banking system-based policy proposal, was formed after the Great Depression of 1929, which had

[17] Dixhoorn. (2013): p. 6
[18] Dixhoorn. (2013): p. 5

devastating effects on the US economy and rest of the world. In 1933, a group of prominent economics professor from the University of Chicago (including Henry Simons, Frank Knight, Aaron Director, Garfield Cox, Lloyd Mints, Henry Schultz, Paul Douglas, and A G Hart) circulated a six-page statement insisting an emergency permanent banking reform (Knight, 1933) depended on 100% reserve requirement[19]. The proposal was also submitted to Irving Fisher, who then expressed his delight for the proposal. In the following years, until his death, Fisher became the most enthusiastic supporter of the plan.

The proposal came into existence due to the observed direct relationship between the money stock and economic activity, as stated by Fisher[20], *"the chief direct cause of the depression was the one-third reduction of the money stock between 1929 and 1933, and the only sure and rapid recovery was through monetary means."* Indeed, empirical evidence confirmed during the Great Depression that credit cycle was directly co-moved with the money cycle, by deteriorating the effect of the economic cycles.

> *"In a downturn for example, limited credit creation reduces the money supply, which can have deflationary effects. This increases the relative value of debts that still have to be repaid and hampers the ability of the economy to reduce the debt burden"*[21].

In his famous book, 100% Money, he also underlined that the plan was[22] *"the best proposal ever offered for speedily and permanently solving the problem of depressions; for it would remove the chief cause of both booms and depressions, namely the instability of demand deposits, tied as they are now, to bank loan".*

In response to the perceived causes of the crisis, the Chicago Plan proposal called for a full monopoly of the issuance of currency by the monetary authority and ordained the banking system to establish reserves for each dollar of checking deposit they have. As a result, the inverted credit pyramid and monetization of credit instruments (such as securitization) would be eliminated under the Chicago Plan[23]. The credit multiplier would be nil and be determined by the real savings instead of the money itself.

The plan would be implemented, according to Fisher (1936) as follows:

[19] Allen (1993): p.705
[20] Letter from Fisher to F. D. Roosevelt, 1936 (Yale).
[21] Dixhoorn. (2013): p. 7
[22] Fisher (1936): p.406
[23] Askari and Krichene (2008).

> *"The Government lend the banks paper money enough to bring up their reserves to the required 100% of their then existing demand deposits. This money would add nothing to the circulating medium. It would merely make deposits consist of real money. The same amount of deposits would exist as before, no more and no less. And the banks would not be allowed to add to the total…. The money to make up the reserves could be lent to the banks by the Government at zero interest, amounting, therefore, to a gift of the use of the money as long as the bank lasts. The Government would then have a lien on the assets of the bank up to the amount of money lent. To safeguard against theft the new paper money could be issued in blank, not good until counter-signed by the bank. This would not be until it was actually needed, which, except in small amounts would never be at all.*
>
> *…The Government should take away from the banks all control over money, but should leave the lending of money to bankers. We could leave the banks free, or at any rate far freer than they are now, to lend money as they please, provided we no longer allowed them to manufacture the money which they lend.*
>
> *… In short: Nationalize money but do not nationalize banking. In fact the present demand to nationalize banking would fade away if only the control of money were recaptured by government. Moreover, in my opinion, almost all of our complicated and vexatious banking laws could be repealed if once we made this separation between money creation and money lending. The insurance of bank deposits would become unnecessary, because there would be no reasons for runs on banks. Furthermore, the 100% plan is the only way to make this separation complete".*

Over a short while, variations to the original Chicago Plan have come into existence with minor differences from the original proposal. They mostly differed in the re-organization and institutional features of the credit system and bank lending while the main features of the proposal were kept intact. Among them, Fisher (1936) proposed[24] "Investment Trust" banks, which could only use savings, sale of securities or equity capital. Simons (1948) worried that such securities could become money substitutes and therefore proposed a purely equity-based system. Angell (1935) had concerns about the feasibility of the new system, and offered fully government funded credit which would enable a more workable transition with full control over the money supply and profound fiscal benefits[25].

Until the beginning of the World War II, the proposal was quite popular in the academia and policy circles. In 1939, the latest version of the proposal was sent to the President Roosevelt, *"reportedly with the support of nearly two hundred economists."*[26] But the proposal lost in political

[24] Fisher (1936): p. 15
[25] Dixhoorn. (2013): p. 7
[26] Allen (1993): p.714

expediency with the attempts of the banking lobby. Indeed, the President opted for "simple restoration of a system people understood under conditions which would assure them of future safety"[27].

Nobel laureates Maurice Allais (1948) and Milton Friedman (1948 and 1959) are also other strong supporters of the Chicago Plan. In Friedman's (1948) proposal all of the banks would hold 100% reserves against deposits so that money stock and high powered money would coincide. In effect, money multiplier would be determined with certainty. Again, the banking system would be bifurcated into two components. Only difference between Friedman's (1948) proposal and the Chicago Plan was that interest was to be paid on the 100% reserves[28]. Allais (1948) defended the 100% reserve system, as well, as a cure to the ongoing financial crises. He also noted that leverage, money multiplier, increased power of the banking sector stemming from credit creation rendered the financial system highly vulnerable to instability[29].

Recently, discussions around the Chicago Plan have revived again after an IMF paper was published in 2011 by the IMF economists Benes & Kumhof (2012). A revised version came in 2013. In their paper, the authors set up a DSGE mode by using real US data encompassing four sectors: Banks, households, manufacturers and government. While the DSGE models are possibly unsuitable to the non-equilibrium nature of the money and credit system and the authors use such a conventional tool to evaluate an unconventional proposal, the simulations and outcomes are still quite invaluable. According to the outputs, the Chicago Plan could significantly reduce business cycle volatility caused by rapid changes in banks' attitudes towards credit risk, it would eliminate bank runs, and it would lead to an instantaneous and large reduction in the levels of both government and private debt. The results for the banking sector don't seem to indicate a restrictive credit supply[30]:

> *"Loans to the private sector and to the government drop by 100% and 20% of GDP on impact, with bank net worth dropping by around 7% of GDP, and treasury credit rising from zero to initially just over 70% of GDP, to replace deposits and the paid-out equity as the funding source for investment loans. Investment loans subsequently increase by almost 20% of GDP".*

On the other hand, macroeconomic effects are impressive. The post-transition economy exhibits a very large output gain that eventually approaches 10% for GDP. This is mainly driven by a 27% increase in investment, and accompanied by an eventually almost 5% increase in

[27] Philips (1992): p.43
[28] Bossone (2002): p.7
[29] Askari and Krichene (2008).
[30] Benes and Kumhof (2012): p. 62

consumption. Over the first few years however consumption drops, because the very rapid increase in investment initially crowds out some consumption[31].

2.2. Modus Operandi of the Chicago Plan

Up until here, the Chicago Plan is described in a quite abstract way. This section succinctly explains the working of the system and the transition period by using the data and outputs which partakes in Benes and Kumhof (2012). The authors use the balance sheets of the government (here the central bank and the treasury is assumed to be one entity) and the banking sector in the US for the beginning time stock values of the system and then calculate post-transition values of the system by the help of a Dynamic Stochastic General Equilibrium (DSGE) model. While this section just reiterates the tables in the original paper, visual apprehension of the process by the help of the already given data could be beneficial to understand both of the logic of the Chicago Plan and the application to the Turkish data in the following parts.

Implementation of the plan is expected to lead to[32] (i) better control of money supply and business cycles, (ii) elimination of bank runs, (iii) less public and private debt. Each of these expected improvements in the current system is also shown and mentioned through the balance sheet changes during the transition period explained below. Ordering of the transition while the plan is being implemented starts with the change in the banking sector balance sheet by introducing the 100% reserve requirement and resulting treasury credits. Then the banking system is bifurcated into deposit banking and investment trusts. After the functional decomposition of the banking sector large netting out of the public debt with the treasury credit partakes. In the last step of the transition citizen dividends are used to netting out the private (households, firms) debt.

In the beginning of the process, whole system operates under the fractional reserve system. In this world, commercial banks' assets are composed of government bonds (20% of GDP), short-term (ST) and mortgage loans (100% of GDP) and investment loans (80% of GDP); while liabilities are composed of deposits (184% of GDP) and equity (16% of GDP) as shown in Figure 1:

[31] Benes and Kumhof (2012): p. 63
[32] Fisher (1936), Benes and Kumhof (2013), Dixhoorn (2013) and Philips (1992).

Table 1: Consolidated Banking Sector (% of GDP)

Commercial Banks Aggregate Balance Sheet			
Assets		Liabilities	
20	Government Bonds	184	Deposit
100	ST & Mortgage Loans		
80	Investment Loans	16	Equity

Source: Benes and Kumhof (2012)

In the transition period to the Chicago Plan, the deposits have to be fully backed by reserves which will be introduced by the government (Table 2). As discussed before, power of the banking sector in money creation process stems from its prerogative to create the credit and this process in return depends on its willingness to give loans. So volatility in the willingness or decisions of the banks to extend credit will be directly reflected in the monetary and credit aggregates, which lead to the business cycles in the economy. Indeed, it might be better to call this phenomenon as the "credit willingness policy" instead of the "monetary policy". On the other hand, introduction of "Treasury Credit" and "Reserves" in the Chicago Plan, as shown in Table 2, eliminates this discretion by the banking sector and gives the government much more power in controlling of the money supply. In this situation the monetary rules can be set much more clearly and effectively simply because, as the banking sector will not be able to create credit, their deposits will be exclusively depending on the money or cash printed by the central bank so that better control of money supply and the business cycles, as given in (i), are achieved.

Table 2: Introduction of 100% Reserves (% of GDP).

Commercial Banks Aggregate Balance Sheet			
Assets		Liabilities	
20	Government Bonds	184	Deposit
100	ST & Mortgage Loans		
80	Investment Loans	16	Equity
184	Reserves	184	Treasury Credit

Source: Benes and Kumhof (2012)

Another policy issue that is closely relevant for the Chicago Plan is the bank runs, which are commonly the trigger mechanism of the crises and a core source of fear for both of the banks themselves and the regulatory public bodies. Elimination of the bank runs under the Chicago Plan will let the

banks to exclusively concentrate on their main functions of lending. On the liability side, elimination of the bank runs will also eliminate funding uncertainties coming from the fear of runs[33]. According to Benes and Kumhof (2012), two conditions must be secured for the Plan to eliminate the bank runs[34]:

(i) The liability side of the banking sector must be fully backed by government-issued money

(ii) On the asset side, these assets must be funded by non-monetary liabilities which are not subject to runs. These non-monetary liabilities can be in the form of non-bank investment trusts funded by treasury credit, private equity, or private non-monetary deposits.

Bifurcation of the banking system as deposit banks which are responsible for risk-free payments system and investment trusts as the true intermediaries between investors and savers clearly satisfy the two conditions above to be met. Indeed, in Table 3, fully backing of the deposits by the reserves in the deposit banking system helps to satisfy (i), and introduction of the treasury credits help to satisfy the condition (ii).

Table 3: Separating Investment Trusts and Deposit Banks (% of GDP).

Investment Trust Aggregate Balance Sheet	
Assets	Liabilities
20 Gov't Bonds	18 T. Credit
100 ST & Mort.	
80 Investment	16 Equity

Deposit Banks Aggregate Balance Sheet	
Assets	Liabilities
184 Reserves	184 Deposits

Source: Benes and Kumhof (2012)

Under the Chicago Plan, the banking system has to use government money to back up its liabilities. As the cash is an asset for the government, even if the gross debt stock be the same, the net asset position of the government will increase to a great extent because under such scenario every unit of loan revealed by the banking system must be backed by the government money. The government can also use this very high asset position to buy back their outstanding treasury bonds from the banking sector. It also must be understood that as the money is not redeemable, it is not a liability from the side of the government but can be considered as

[33] Askari, Iqbal, Krichene,&Mirakhor (2010): p21
[34] Benes & Kumhof. (2012). pg. 6

equity[35]. This kind of public debt write off process is shown in Table 4 as some of the outstanding government debt (20% of GDP) is netted out with the equivalent amount of the treasury credit.

Table 4: Reduction in Public Debt (% of GDP).

Investment Trust Aggregate Balance Sheet	
Assets	Liabilities
100 ST & Mort.	164 T. Credit
80 Investment	16 Equity

Deposit Banks Aggregate Balance Sheet	
Assets	Liabilities
184 Reserves	184 Deposits

Source: Benes and Kumhof (2012)

Apart from the decline in the public debt, introduction of the treasury credit also has profound effects on the private debt. In Benes & Kumhof (2012), large scale reduction in the private debt is implemented through transfer of some of the treasury credit in the form of citizen dividends which are used for netting out a matching amount of private debt by the private sector. While, private debt reduction process has some clear problems in the real world, it is more than enough even just to know that such an option exists. The balance sheet of the banking sector after the private sector debt payoff is given in Table 5. Here, short-term and mortgage loans (100% of GDP) of the private sector are netted out by the treasury credit.

Table 5: Reduction in Private Debt (% of GDP).

Investment Trust Aggregate Balance Sheet	
Assets	Liabilities
80 Investment	64 T. Credit
	16 Equity

Deposit Banks Aggregate Balance Sheet	
Assets	Liabilities
184 Reserves	184 Deposits

Source: Benes and Kumhof (2012)

This section ends with a glance at the government (or public sector) balance sheet after introduction of the plan.

[35] Benes & Kumhof. (2012). pg. 7

Table 6: Government Balance Sheet After and Before the Plan (% of GDP).

Assets	Liabilities
80 Other Net Assets	80 Gov't Bonds

Assets	Liabilities
80 Other Net Assets	60 Gov't Bonds

Source: Benes and Kumhof (2012)

According to Table 6, government bonds are 80% of GDP before the transition period. Introduction of the treasury credit to match the deposits and netting out process of the government debt in the banking sector balance sheet is ended up with a large reduction in the outstanding public debt. But the bigger effect occurs thanks to the treasury credit as equity in the government balance sheet. Kumhof and Benes (2012) refer to this process as a large "debt-equity swap".

3. The Chicago Plan from the Lens of the Islamic Economics

Up to here, all the paper is revolved around the Chicago Plan, which is an idea, a proposal and a discussion within the circle of the conventional economics. At first glance, there seems to be nothing related to Islamic economics. But a deeper look at the concept of the Chicago Plan and 100% reserve banking, in general, clearly reveals that the proposal almost entirely overlaps with the precepts of Islamic economics and the pillars of the Islamic banking (at least in theory). This high degree of similarity deserves closer attention and has two-sided benefits. On the one hand, the conventional literature may recognize that Islam has already ordained the ideal way of banking almost 1,400 years ago and understand that there is lot to learn from Islamic economics. On the other hand, Islamic economics can benefit from the rich intellectual base stemming from the discussions around the 100% reserve system as any prospective transformation into the banking system will face with the same problems and difficulties discussed in the literature.

Basically, ideal banking system in Islam is composed of two separate institutional structures: full reserve banking system for payment functions of the economy and investment banking as the real intermediary between saving and investment. When these structures are combined with the prohibition of interest, the result is a quite stable financial system. Hence the only noticeable difference between the Chicago Plan (100% reserve banking, in general) and Islamic finance is the interest and interest-bearing debt. Moreover, some drawbacks of the proposal can only be eliminated in the existence of ban on interest. Rest of this section delineates the two aforementioned structures of Islamic economics and discusses their main functions for the economy. The section ends with a short discussion on why prohibition of interest can correct the main drawbacks of the Chicago Plan.

In Islamic system, deposit banking system performs safekeeping and smooth functioning of the payments system through contracts such as *amanah, wakalah, jo'alah, and kifalah* for a fee. These contracts also help for the functioning of other services such as custodial services, brokerage, consulting, guarantees and insurance. In such a system, there is no money creation process because all of the deposits in the banks are backed by 100% reserves. Hence, credit multiplier is also zero as there is no creation of money "out of thin air". As the deposit banking and investment banking are two strictly separated institutions, customers are to choose putting their money either of them with opportunity costs embedded to each of them: If one to put the money into the deposit banking for safekeeping or payments purposes, a prospective (but not certain) return is forgone. If the money is invested in the investment accounts, the return is not guaranteed. Assuming an average person is risk averse, a priori, we would expect both of the types of accounts are distributed quite equally. But prohibition of interest and existence of the payment fees create an implicit inducement in favour of investment accounts, which are the savings that are propulsive factor in economic growth.

While 100% reserve requirement is proposed, such as in the Chicago Plan, mostly for the goal of keeping the stability of the system, in Islamic system, it has close relationship with the property rights. This comes from the presumption that demand deposits are used for safekeeping (amanah) purposes; these deposits are not property of the bank so that the banks have no right to use them for their money creation. Indeed, in Islam, there are strict restrictions in using someone's property which is placed in someone else's safe keeping[36]. A natural extension of this rule is that *"a contract based on Islamic Law severely prohibited the use to which 'the depository could put the deposited property'[37]. This is contrary to the concept of deposits in the West, 'where the depository not only kept the goods but also had a right to use them for a variety of commercial purposes'[38]… In fact the strong position that the early Muslim scholars took on such questions as the stability of the value of the currency, stability of prices, and debasement of currency can be explained as a result of their understanding of the Islamic concepts of property rights and of economic justice."*[39] Apart from the restrictions of using someone else's safekeeping, another problem with the non-full reserve banking system is that money creation creates ownership from nothing and this money creation process redistributes wealth, through inflation, in a zero-sum game[40]. On this basis, money creation process is

[36] Khan and Mirakhor (1993): p.10
[37] Udovitch (1975): p.19
[38] Udovitch (1975): p.19
[39] Khan and Mirakhor (1993): p.11
[40] Meera and Moussa (2009): p.14.

both impermissible by Islam and against the attainment of *maqasid al-shariah*.

Other structure of the Islamic banking, again at least in theory, is the investment trusts that receive savings and canalize them to the investment. In such a system the investment trusts are real intermediaries. The system works on the pillar of profit and loss sharing (PLS), in which no nominal return is guaranteed. The investor takes part in the process through participation (such as *musharakah*) or agency (such as *mudarabah*) contracts. The returns are determined ex-post and only a function of the performance of the investment.

Similar to the 100% reserve backing for deposits, investments are fully backed by the real savings as there is no room for credit creation similar to the impossibility of money creation in the deposit side of the system. Strict bifurcation of the banking activities also give rise to no monetary role for the investment banking in Islamic system. In such a system, investment trusts can't cause a financial crisis (as an opposite situation, remember, the 2008 crisis has started with the problems in the three investment banks- Lehman Brothers, Bear Stearns, and Merrill Lynch.) as they invest their clients' money only on a pass-through basis and thus systemic risk is minimized[41]. In such a system, income generation is a function of the saving rate[42]. These features imply that cycles in the economic activity will be a function of technical change or real shocks and not be a product of financial system and financialization. The result then is a stable equilibrium with a rate of return in the financial system full overlapped with the rate of profit in the real sector[43].

4. The Chicago Plan and Sectoral Balance Sheets in Turkey: A Simple Application

This section applies the Chicago Plan on the sectoral financial balance sheets in Turkish economy to understand the prospective changes in the stock variables. While the way of analysis is quite simple without encompassing any behavioral or dynamic pattern and only looks at the one time changes in the stock variables just after the transition, it still can reveal some important information about the end of the transition level of debt stock and general picture of the asset and liabilities for the main sectors in the economy. Especially transactions and netting outs between the banking sector and the public sector may give some concrete ideas about the transition period of the Chicago Plan.

[41] Askari and Krichene (2014): p.10

[42] Importance of the savings and income generation through the banking system is described by Askari, Iqbal, Krichene &Mirakhor (2010).

[43] Mirakhor (1988): p.20

Sectoral balance sheets in the analysis cover financial asset and liability stocks of the main sectors in the Turkish economy. The data for the balance sheets are extracted from open data sources such as the Central Bank of the Republic of Turkey, and the Banking Regulation and Supervision Agency. By definition, every asset entry in a sector is matched by a liability entry in another sector. The sectors covered in the analysis are households, firms, banks, non-banking financial institutions, the central bank, the public sector and the foreign world. Due to initial netting outs within the sectoral balance sheets or using only the market value of the stocks in the whole analysis or definition of the ownership numbers given in the tables are sometimes different from their published counterparts.

The data employed for the analysis covers the last period, June 2015. The analysis focuses on only Participation banks.

Table 7: Participation Banking Sector Balance Sheet

Balance Sheet (million TL), Period: 2015/6, Last update: 8/14/2015							
Assets	**TRY**	**FX**	**Total**	**Liabilities**	**TRY**	**FX**	**Total**
Cash	708,94	2.449,96	3.158,91	Deposit (Participation Funds)**	37.537,28	32.673,10	70.210,38
Receivables from Central Bank	1.103,59	1.893,57	2.997,16	a) Demand Deposits (Participation Fı	8.885,22	8.944,86	17.830,08
Receivables from Banks	1.274,53	7.276,76	8.551,29	b) Term Deposits (Participation Fund	28.652,06	23.728,24	52.380,30
Securities Held for Trading (Net)	3,34	0,00	3,34	Payables to Banks	1.213,01	13.890,10	15.103,11
Securities Available for Sale (Net)	3.961,99	2.032,41	5.994,40	Funds from Repo Transactions	2.824,92	0,00	2.824,92
Required Reserves	0,00	10.897,40	10.897,40	Leasing Payables (Net)	80,76	371,85	452,60
Loans	61.020,64	7.857,56	68.878,20	Taxes, Duties, Charges and Premium	136,49	0,06	136,55
Non-performing Loans (Net) (12-13)	1.532,03	13,69	1.545,72	Subordinated Debt	0,00	2.410,41	2.410,41
a) Non-performing Loans	3.888,06	25,79	3.913,84	Interest (Profit Share) and Expense A	227,18	361,92	589,10
b) Provision for Non-performing Loans (-)	2.356,03	12,10	2.368,12	a) Deposit (Participation Funds) Inte	131,86	36,38	168,24
Interest (Profit Share) and Income Accruals and Redi	3.358,29	231,88	3.590,17	b) Other Interest (Profit Share) and E	95,32	325,54	420,86
a) Interest (Profit Share) and Income Accruals and Re	3.092,48	154,11	3.246,59	Provisions	1.287,99	253,15	1.541,14
b) Interest (Income) Rediscounts from Securities	197,81	15,98	213,79	Other Liabilities	4.360,54	7.249,11	11.609,64
c) Other Interest (Profit Share) and Income Rediscou	68,01	61,78	129,79	**TOTAL**	47.668,17	57.209,68	104.877,86
Leasing Receivables (Net)	3.491,51	176,56	3.668,07	Paid - in Capital	7.602,01	0,00	7.602,01
Affiliates, Subsidiaries and Joint Ventures (Net)	675,57	0,00	675,57	Legal Reserves	3.072,78	0,00	3.072,78
Securities Held to Maturity (Net)	1.645,97	0,00	1.645,97	Fixed Asset Revaluation Fund	490,05	0,00	490,05
Assets to be Sold (Net)	372,03	0,00	372,03	Profit (Loss) of the Period	414,37	0,00	414,37
Premises and Equipment (Net)	1.551,05	1,64	1.552,69	Accumulated Profit (Loss)	-942,14	0,00	-942,14
Other Assets	1.826,65	167,46	1.994,11	**TOTAL SHAREHOLDERS' EQUITY**	10.667,92	-20,76	10.647,16
TOTAL ASSETS	**82.526,13**	**32.998,90**	**115.525,02**	**TOTAL LIABILITIES**	**58.336,10**	**57.188,92**	**115.525,02**

According to the table (Table 7), government debt instruments comprise 5.2% of total assets of Participation banks, while deposits are 60.2% of total liabilities. As the deposits must be backed by the reserves, the government introduces the treasury credit equals to the amount of the deposits in the banking sector.

Table 8: Introduction of 100% Reserves.

Participation Banking Aggregate Balance Sheet	
Assets	Liabilities
59,6 Loans	60,8 Deposits
5,19 Securities Available for Sale	30 Other
35,21 Other	90,8 Total
60,8 Reserves	9,2 Equity

160,8 Total	60,8 Treasury Credit

Source: Own calculations

Bifurcation of the banking system as deposit banks which are responsible for risk-free payments system and investment trusts as the true intermediaries between investors and savers is shown in Table 9.

Table 9: Separating Investment Trusts and Deposit Banks.

Investment Trust Aggregate Balance Sheet	
Assets	Liabilities
59,6 Loans	60,8 T. Credit
5,2 Gov't Debt	30 Other
35,2 Other	9,2 Equity
100 Total	

Deposit Banks Aggregate Balance Sheet	
Assets	Liabilities
60,8 Reserves	60,8 Deposits

Source: Own calculations

After separation of the banking sector into two institutions, the next step is to look at the change in the government debt stock resulting from the netting out between the banking sector and the public. According to Table 10, this debt-deposit swap gives rise to a decline in the investment trust assets equal to 5.2% of GDP stemming from the debt-treasury credit swap process.

Table 10: Reduction in Public Debt (% of GDP).

Investment Trust Aggregate Balance Sheet	
Assets	Liabilities
59,6 Loans	55,6 T. Credit
35,2 Other	9,2 Equity
94,8 Total	30 Other

Deposit Banks Aggregate Balance Sheet	
Assets	Liabilities
60,8 Reserves	60,8 Deposits

Source: Own calculations

Conclusion

This paper discusses the Chicago Plan as an alternative banking system to the current conventional banking system. The plan requires changing current regulatory framework, legal documents and common practices in the banking area. These issues would be very challenging for regulatory

authorities. While its benefits are huge, it's highly possible that implementing such a plan for the governments is quite difficult considering the transactions costs, lobbying, uncertainty of the new system and political outcomes. Furthermore, the plan would inevitable decrease the assets of banking system and may shrink the credits given to the real sector, which is not desirable for political parties and local governments. Moreover, the regulators should be very careful when designing the plan by not eradicating the public sector power and the government spending based on the seigniorage power of the monetary authority.

Nonetheless the main message of the original proposal and this paper is not to assert that the world would directly apply this system. In economics, the real policy options are determined and evaluated against the pure or ideal benchmarks. We suggest that this full reserve banking system could be considered as a benchmark in order to eliminate the negative externalities of current fractional reserve banking system. The system could be reformed and policy options might be widen in a degree that more wealth-creating policies can be introduced and implemented.

Though the Basel Committee on Banking Supervision (BCBS) has finished many reform attempts since the last financial crisis, there is still a need for reforming the banking system in many aspects. The BCBS is very busy on calibration and coherence of the reforms. The Chicago plan can be discussed in the BCBS meetings and difficulties in implementing such plan at the national level could be resolved at international platforms. Some rules, similar to the Basel Accords' rules can be developed as benchmarks for internationally active corporate banks as well as investment banks.

The important point is that studying such a system is beneficial for the understanding the logic of the Islamic finance by the conventional policymakers. Islamic finance offers similar framework for risk sharing and reserve formation with the Chicago plan. The difference between Islamic finance and the Chicago plan is that the former is based on elimination of the interest rate and the latter is grounded on interest rate. Moreover, Islamic finance can survive its functions in conventional framework. However, a new regulatory framework for the Chicago plan should be designed, because current framework is not appropriate for such a radical plan. It is claimed that the Chicago plan can be easily implemented for Islamic banks in some countries which want to increase Islamic banks' share to total banking system. After this preliminary implementation it would be less risky to implement this plan for conventional banks.

Clearly we need more academic efforts on discussing different aspects of the plan. Especially, more empirical and econometrical researches are needed to silhouette the scope of the plan and to see the interaction of the

plan with other macro-economic variables including exchange rate, export, import and credits volume. In this sense, empirical evidences on the characteristics of the system would be essential to understand whether the system will be self-sustaining or self-disruptive. A survival analysis would be very helpful for assessing the unpredictable real effects of the reform. Also a modernized DSGE model can be used to see effects of the plan on balance sheets of banks and on other macro variables.

As a conclusion, the last financial crisis showed us that conventional policies are not enough for preventing unexpected outcomes of current banking system. Though introducing new regulations might be a good option for addressing unregulated transactions and institutions, the global and local financial authorities should be open minded to discuss new models for reforming current financial system, including the Chicago plan, Islamic finance and socially responsible investing and many others.

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